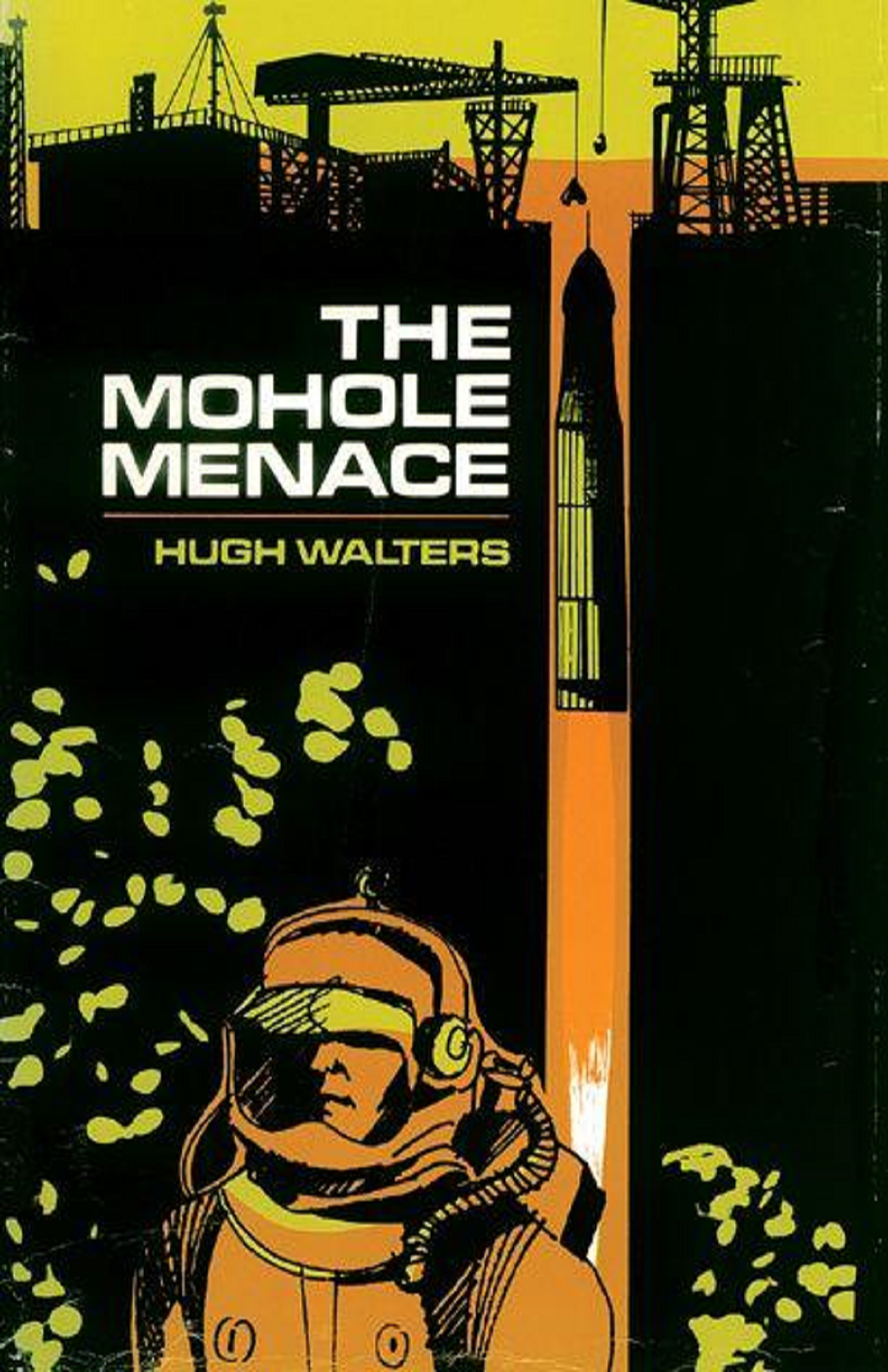
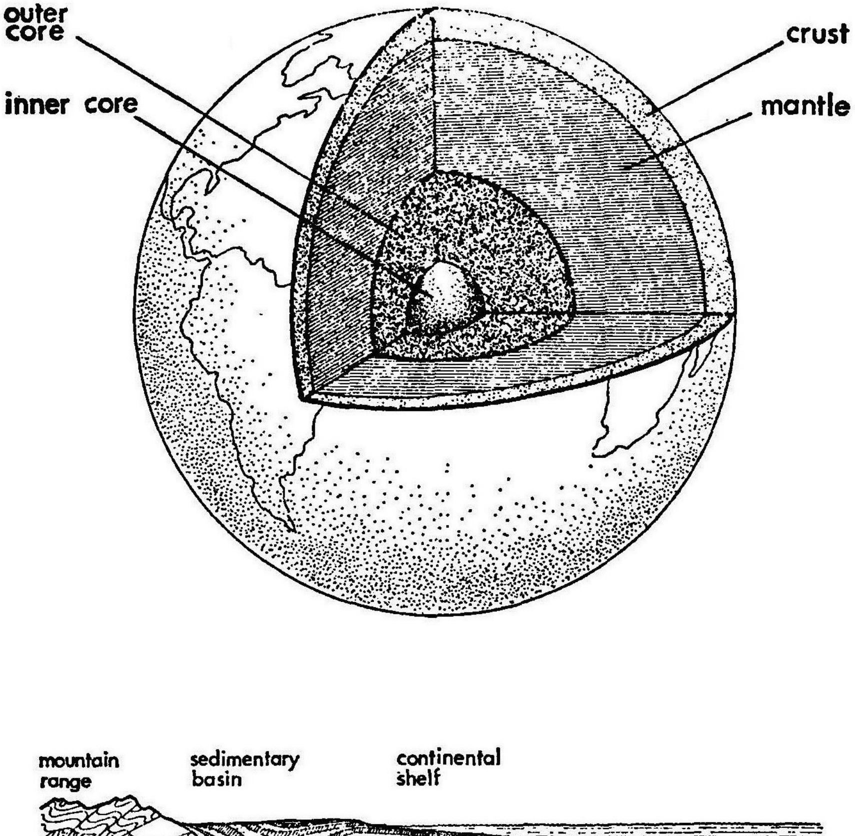


THE MOHOLE MENACE

HUGH WALTERS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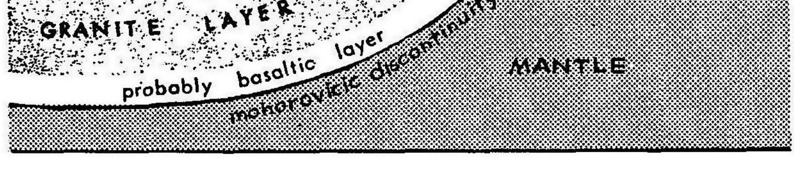
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GRANITE LAYER
probably basaltic layer
mohorovicic discontinuity (moho)
MANTLE

The
Mohole Menace

Hugh Walters

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By Hugh Walters

EXPEDITION VENUS
JOURNEY TO JUPITER
MISSION TO MERCURY
SPACESHIP TO SATURN
TERROR BY SATELLITE

The Mohole Menace

1

"You know, I think there's something in the wind," Tony Hale said thoughtfully.

With his three companions Chris Godfrey, Morrey Kant and Serge Smyslov, the young engineer was walking through Hyde Park on a warm June morning.

Crowds of people were enjoying the warmest day for weeks. Chairs and benches were filled, and the grass was littered with people basking in the welcome sun. Just the faintest of breezes ruffled the leaves of trees as it brought the low rumble of distant traffic. A rubber ball struck Morrey's back and with his characteristic grin, he kicked it back to the youngsters so they could continue their game.

"That ball was in the wind, Tony," Morrey laughed.

"Oh, come off it," Tony replied, not amused. "You know what I mean. I think something's going to happen."

"Like what?" demanded Chris.

Tony hesitated. He couldn't put into words the vague uneasiness he felt. All he knew was that this had been the longest spell of leave the four astronauts had ever had. And there was no explanation for it. They were all fit and had fully recovered from their last exploit in space. Daily they had expected a summons from their old friend and chief, Sir George Benson. But this famous scientist—the Director of the United Nations Exploration Agency—had been strangely silent. Not once had he contacted them, and they had no idea when they could expect the next trip.

"How much longer are we going to be kicking our heels?" Tony asked pointedly.

"Your guess is as good as mine," Chris answered. "I've no doubt Sir George will let us know sooner or later about our next assignment."

"You don't think he's forgotten us, do you?" Tony asked.

"Not a chance," Morrey assured him. "Anyway, we're still getting our pay checks, aren't we?"

All four astronauts knew that the money was less important to them than the job they had been trained to do. Only when they were out in space, or preparing for an expedition, could they be really happy. That mysterious "something"—to be found only in the vast emptiness between the planets—had captured them. They would never be free from it again. Though they had suffered incredible hardships and faced unimaginable dangers together, the quartet wanted nothing better than to be dispatched once more on one of those long, lonely journeys. Each, secretly, was heartily tired of this enforced idleness.

"Do you think we ought to contact Sir George?" Serge asked.

"I don't know," Chris sighed. "I certainly expected to hear from him before now. But I'm sure he'll be sending us a call before long."

"Can't be too soon for me," Tony complained. "If only he'd let us have a spell in Lunar City."

He meant the ever-expanding base that had been set up many years before on Earth's satellite. All four had been to the Moon many times and it had lost much of its novelty for them. But at least it would be better than this aimless waiting around London for a call which never came.

"Where is Sir George?" Morrey wondered.

"Haven't a clue," confessed Chris. "He might be at Cape Kennedy, or Washington, or Woomera. He might even be here in London. He seems to have disappeared completely."

"That's why I think something's going to happen," Tony said, eagerly. "It isn't like the Chief not to send us a message of some sort in all these weeks. There must be some special reason why he's disappeared!"

"I vote we try to locate the old buzzard and ask him what's cooking," Morrey Kant declared. "Tony here will be going crazy if he doesn't get something to do soon."

"Very well," sighed Chris. "I don't like pressing Sir George. He's probably got his own good reasons for keeping us on ice, though I confess I'll be glad when we get our next job."

For a time the four astronauts discussed how they would try to discover the whereabouts of their old friend and Chief. Chris doubted very much whether they would learn anything from Sir George's London office. The staff there could be tighter than clams. Even to Chris, who knew many of them, they would be silent if so ordered. But at least a visit would discover whether or not a gag was in operation.

"I'll go to the office," Chris decided, "while you, Serge, go and pump old Whiskers. Tony can trot out to Farnborough, and Morrey, will you phone Billy Gillanders at the Cape?"

The four friends agreed that it would save time and trouble if they split up as Chris had suggested. They agreed to meet at the flat they shared at nine o'clock that night. Surely by then one or other of them would have found the whereabouts of their elusive Chief. Then they would press him to hurry their next jaunt around the solar system.

Because he'd loaned his car to Serge, Chris went by bus to the huge red-brick building in Theobalds Road. With a wave to the commissionaire, he strode toward one of the lifts, and pressed the sixth floor button. A few quick strides along the corridor brought him to the well-known door, which led to an outer office where the secretaries worked. Sir George's own room was beyond this, although Chris wasn't interested in it at the moment.

"Hello, girls," he called as he breezed into the secretaries' office. At once chattering stopped and typewriters ceased to rattle.

"Mr. Godfrey!" exclaimed one of the girls. "How nice to see you. Are the others with you? Are you staying in town?"

"Nice to see you, too, Hazel. No, I'm alone. The others have gone and left me. Well, how are you all?" he asked, including all four girls in the office. "Behaving yourselves while the Chief is away?"

"But of course," cooed Michelle, who was French. "We have few handsome visitors like you."

"Er—any idea when Sir George will be back?" Chris asked hastily.

"No," the girl he'd called Hazel replied. "We don't know when to expect him."

"How do you keep busy, then?" Chris asked with a grin.

The girls assured their visitor indignantly that Sir George had left mountains of work for them to do, in addition to the typing of innumerable reports which kept flowing in from all over the globe. Sir George had warned them that he'd want them all when he returned.

"I'm sure you all work very hard," Chris beamed at the indignant girls. "Oh—er—by—the way, any idea how I can get in touch with him?"

There was a sudden silence in the office. The laughter had gone, the joking and teasing were over. Hazel and her companions were suddenly uncomfortable and ill at ease.

"Sorry, Mr. Godfrey. We don't know, and even if we did we wouldn't be able to say. There's a top security clamp on."

"But why? What's happening?"

"We don't know, Mr. Godfrey. It's all very mysterious," Hazel replied.

"It certainly is," Chris declared. "Well, thanks very much, girls. Don't do anything I wouldn't do."

And with that Chris took his leave. A security clamp, eh? Most unusual. This had never happened before on any of their space trips. Now that every nation was involved, through the United Nations, in the joint exploration of space, what was the point of such secrecy? Chris made a few more calls on friends in other offices in the vast building, but his pumping only produced the same answer that he'd had from Hazel and her friends. In disgust at his lack of success, the astronaut left the building with only a perfunctory farewell to the commissionaire.

Serge Smyslov was driving Chris's white sports car along the North Circular Road. He was looking forward very much to meeting old "Whiskers" Greatrex, the ex-Wing Commander with the huge, fiery mustache. Whiskers had long retired from the Royal Air Force, but his lifelong friend, Sir George Benson, had found his services useful on more than one occasion. Usually, he was roped in as guide, philosopher and friend of the four astronauts during the trying period of their training. So the boisterous ex-officer, always good for a practical joke, was a great favorite with Chris and his team.

At Hendon, Serge joined the motorway and was bowling along nicely till he came to the Aylesbury Road fork. Then he left the motorway and drove more sedately toward the busy Buckinghamshire market town. He threaded his way through congested traffic to the Wendover Road, and sighed with relief as he passed the de-restriction sign. Two miles outside the town he turned left.

Whiskers Greatrex and his wife Mary lived in a half-timbered house that had often appeared on picture post-cards. Now that he was no longer engaged on "special duties," Whiskers devoted his boundless energy to the house and garden. He'd worked wonders in modernizing the interior of the building without causing it to lose its old world charm. The garden was a dream from a seedsman's catalog, and the lawn was as smooth as a vast billiard table.

Serge switched off the engine, passed through the ornamental iron gate and walked up the short, graveled path to the house. He gave a cheerful rat-a-tat with the door knocker and waited with keen anticipation to see his old friend's surprise. It was fully five minutes and several hearty knocks later before the disappointed Russian accepted the fact that there was no one at home. What should he do? Hang around or return to London? Whiskers and Mary might be away for a few days, but Serge didn't think so, because the lawnmower hadn't been put away. He decided to wait for a while, for he'd have many hours to kill before meeting his friends that evening.

The astronaut had barely finished his first tour of the garden when he heard the loud hooting of a motor horn and the fearsome squealing of brakes. Serge smiled with relief, for he recognized the signs of Whisker's arrival. True enough, the familiar voice was hailing him from the other side of the hedge. They met at the gate and there was a great pumping of hands and slapping of backs.

"Saw you go through the Market Square," explained Whiskers. "Guessed you'd be coming here. Mary and I were shopping and I have to go and collect her as soon as I've made sure you're staying to tea. I thought if I didn't come after you pretty smartly you might have pushed off. So I dug the old flyer out of the car park and hared after you."

"Nice to see you again, Whiskers," Serge said sincerely. "Yes I'll stay and have a cup of tea, if it's only for the pleasure of seeing Mrs. Greatrex. How are the boys?"

"Fine," Whiskers informed him enthusiastically. "Both doing well at college. We expect them home for a few days between terms next week. And how are my four favorite skymen?"

"Very well," smiled Serge, "but ought we not to go and meet your wife?"

As they drove back into Aylesbury the two exchanged news and gossip, and it was when Whiskers asked what the quartet were doing that Serge admitted how mystified and bored they were with their extended leave.

"We have not heard from Sir George for more than two months," he said. "Do you know where he is?"

Whiskers skillfully maneuvered his car into a vacant parking space before replying.

"I don't know where he is just now," he said thoughtfully. "But it was Mary's birthday ten days ago. Benny has sent her a card every year since we were married. This year one didn't arrive on her birthday. Now we thought this was queer, because no matter what part of the earth he's been in, he's always managed to get it delivered on the right day. Two days later one did arrive, and do you know what postmark it carried?"

Serge shook his head.

"You tell me," he said.

"Dudley, in Staffordshire," Whiskers answered dramatically.

It wasn't until they had collected Mrs. Greatrex and had driven her home that the two men were able to discuss further the mystery of Sir George Benson. While Mary prepared tea, Serge told Whiskers how puzzled they were and how they had resolved to try to find Sir George, if only to ask him what were his plans for them.

"We thought he might have been at the Cape, or Houston, or Washington, or perhaps Woomera. What can he be doing in the Midlands, and why hasn't he contacted us, being so near?" Serge mused.

Though they discussed the problem until Mary called them to the table, the two friends were unable to shed any light on the problem. The birthday card had contained no message except the brief expression of good wishes under which Sir George had scrawled his signature.

"Do you know anything about Dudley?" Whiskers asked his wife as they ate.

"Yes, I stayed there for several weeks with an aunt many years ago," Mary answered, putting down her cup. "It's a medium-sized town about six or eight miles from Birmingham. I remember its castle well. The grounds have been turned into a rather wonderful zoo. I can't remember much more about it, except that nearby are a lot of caves and old limestone mines."

An hour later Serge took leave of the Greatrexes and drove thoughtfully back to London. If Sir George Benson had been barely a hundred miles away some ten days ago why hadn't he contacted the astronauts. Even when he'd been on the other side of the globe he hadn't let such a long period pass before. What was going on at the midland town to justify the presence of one of the world's foremost scientists, who never wasted time anywhere? It would be interesting to hear what Chris, Morrey and Tony had found out.

Tony had traveled by bus to Farnborough. As he alighted from the vehicle just outside the main gates of the huge astronautical training establishment, he recalled the many times he'd been here before. Years ago this had been a famous aeronautical experimental station, but now it was devoted to the training of space pilots and men destined for duty on the moon and Mars. In the past, with Chris and the others, Tony had spent many weeks here before each of the journeys into the void. Sometimes part of their training had been done in the United States and Russia, but always they'd started off with a spell at Farnborough.

At the guardroom Tony gave his name to the Air Force sergeant who, after a brief telephone call, signaled him to proceed. Group Captain Lambert was the chief medical officer, and Tony went straight to his quarters. The M.O. greeted the young man warmly.

"I know you're not here for training, so I guess this is a social visit."

"No. I only wish I were here for training," Tony sighed. "That's the trouble."

He explained to the Group Captain how concerned he and his friends were at the lack of instructions from Sir George, and asked if he had any news of the scientist. Lambert replied that he hadn't, except a brief message that Benson would be coming to see him within the next fortnight. With that Tony had to be content, for Group Captain Lambert couldn't—or wouldn't—say if there were any plans afoot for the four friends. Tony returned to London and dejectedly made his way to the flat.

2

One by one the four astronauts returned from their quests. Tony was first, to be followed quickly by Morrey and Chris. It was almost nine o'clock before Serge returned from Aylesbury. By common consent the early arrivals hadn't made their reports until all were present. Then Chris began by relating his lack of success at Sir George's office. However, the significant thing to come out of his call was that some sort of security restriction was on.

For some time the four discussed Chris' contribution, but none of them were able to hazard a guess at what it all meant. Since the end of the Cold War in the late sixties and early seventies there had been completely free publication of all scientific information. Now that military considerations no longer existed it was most unusual, to say the least, to have this secrecy. Tony's story was of little help, either, except that it revealed that the quartet were not scheduled for spaceflight training in the near future.

Serge's account of his visit to Whiskers added to the mystery. None of them could understand why Sir George should have been anywhere near Dudley. Normally he was scuttling back and forth between the great space port and London and New York. The only suggestion

Serge could make was that Sir George was on his way somewhere when he suddenly remembered Mary's birthday, and that Dudley happened to be the first town where he could stop and send a card. But the Russian himself admitted that his theory was a weak one.

"How did you get on, Morrey?" Chris asked.

It had been the American's turn to make the coffee, and he passed the cups around before replying.

"I had no luck, either," he said, taking his seat. "The Chief hasn't been seen or heard of at either the Cape or Woomera for weeks. Billy Gillanders was unable to say where he is, because he'd had to deputize for him at a UNEXA meeting."

In itself it was strange that Sir George—its Director—should miss a meeting of the United Nations Exploration Agency. He was always most meticulous in personally carrying out his duties, and it was very unusual for Mr. Gillanders to have to step in.

"I shudder to think what the telephone bill will be," Morrey said despondently.

For almost an hour they discussed the disappearance of their friend and Chief, but they were still unable to advance one good reason why he should have vanished. Then, at precisely ten o'clock, there came a knock on the door and the voice they heard asking if they were home brought them to their feet.

It was the voice of Sir George Benson.

Tony won the race to the door. As he flung it open wide, the tall white-haired figure of the famous scientist appeared. There was a babble of greetings and questions as Sir George was dragged inside. A weary smile on his face, Benson raised his hand in protest at the torrent that was flooding over him from all sides.

"Please give me a moment," he managed to say, and there was something about his tone that silenced the astronauts in a flash. With a tired sigh Sir George sank into the proffered chair and took the cup of coffee Morrey had conjured up for him. He drained it in two gulps and then handed it back.

"That's better," he said with a faint smile. "Now what's all the fuss about?"

"Fuss!" Tony exploded. "I like that. Here we are—twiddling our thumbs for months on end waiting for the next job. You disappear and leave us out on a limb. Isn't that enough to get worked up about?"

"Sorry," the scientist smiled. "How did I know you all wanted another assignment?"

There was a split second of astonished silence before the four young men realized that Benson was teasing them. There was a roar of laughter at the Director's air of innocent surprise.

"Come off it. You've something up your sleeve, haven't you?" demanded Morrey. "What planet are we going to next?"

As if a sponge had cleaned a blackboard, the smile was erased from the scientist's face. Instead it became serious, and the lines of strain reappeared. Now the quartet could see that Sir George had aged quite a bit since they last saw him just a few months before. For the first time it struck Chris that Uncle George couldn't go on for ever. Without doubt he was reaching retiring age. It would be strange working under someone else, for the famous scientist had directed all the space flights of these four young men. With a twinge of concern, Chris studied his old friend's face intently.

"Been having it a bit rough lately?" he asked Sir George sympathetically.

Benson forced a weary smile.

"Just a bit," he conceded. Then he was silent for a time, as if turning over in his mind what he would say to the astronauts.

The volatile Morrey was all agog to hear which planet was their next objective. Together, they'd visited every one in the solar system except the three most distant—Uranus, Neptune and Pluto. Now that hypothermia, the process of reducing body temperature so that the astronaut was in a state of suspended animation, had been perfected, journeys to the end of or beyond the solar system were not impossible. Perhaps Sir George had plans for them to visit the nearest star. Even though it was four and a quarter light years away this would mean nothing to the space travelers, who would be unaware of the passage of time. It was when man started exploring other solar systems that intelligent life might be found, Morrey thought excitedly.

"They say a change is as good as a rest," Sir George Benson began, "but don't you believe it. At least I haven't found it so. To tell the truth, I've found the last few months as strenuous as any I can ever remember. Perhaps it's because my work has been in a totally unexpected field, one that you'd never guess in a thousand years."

The curiosity of the quartet became almost unbearable. Sir George was primarily a space scientist, and they couldn't imagine him engaged in any other work. It must be something to do with astronautics, even though his words had created doubts. If he had in fact been working in a new field, how could it concern them? They were trained astronauts, and so specialized had their training been that it was difficult to imagine how they could fit into any other sort of job.

"As you know," the scientist went on, "the United Nations Exploration Agency is responsible for all forms of exploration, not only that of space. Because there are very few parts of the earth's surface which haven't been fully investigated, terrestrial exploration is completely overshadowed by ventures such as your own. However, there is a type of exploration that is still in its infancy. I mean—finding out about the earth's interior."

"Oh, that," exclaimed Tony in disgust. "What's the use wasting time and money bothering the old terra firma? Who wants to know what's going on underfoot?"

The scientist laughed aloud.

"You know, I expect almost the same words have been used hundreds of times about space exploration. Many people used to wonder if the effort and expense involved in visiting other planets and satellites wasn't a complete waste. We know better now. I'm sure that when you know a little more about the subject, you'll think explorations of the earth's interior are well worth while, Tony."

The mechanic shuffled uncomfortably at his old friend's rebuke. But he was still at a loss to know why Sir George was trying to interest the four friends in geology. It wasn't their line, and Tony didn't see the point of it all. They were never happier than when they were streaking away from earth into their favorite environment—interplanetary space.

Chris thought it was time he took a hand.

"Come on, Uncle George. Tell us what you've been up to. That is unless it's still top secret," he urged.

Benson gave Chris a quick glance.

"Yes, I've heard you've been ferreting about a bit," he said laconically. "Well, it has been top secret—and to the outside world it still is. Listen carefully and I'll give you an outline of the situation."

They listened eagerly.

"I suppose it would be true to say that we know more about conditions millions of miles above our heads than we do of those a score of miles beneath our feet," Sir George began thoughtfully. "Yet it's old Mother Earth who provides us with almost all our needs—minerals, food, and the thousand and one things that make modern civilization possible. We draw coal, oil and scores of chemicals from the abundant stores down below. Until two or three generations ago the whole industrial development of the world was based on coal, though these days we use it very little for burning. As you know, coal is now mined for its marvelous chemical properties, and one shudders to think of the waste that took place before atomic energy superseded it. Coal mines, oil wells, and a few deep mineral mines have represented our total incursion into earth's crust. Even the deepest of these, some three or four miles, barely scratch at the surface. For information below this depth we rely on seismology, the science of earthquakes and the study of the shock waves they set up."

Tony could barely conceal his boredom. If the Chief was going to give them a lecture on geology, then they were all wasting their time. What a letdown it was having this talk on earth science after the mounting excitement of the Chief's mysterious disappearance. He struggled hard to suppress a yawn.

"Geologists, with the help of these seismic waves, have discovered a surprising amount about the earth's interior," Benson went on. "When an earthquake happens, or an underground atomic explosion takes place, two types of seismic waves are sent out. The first kind is called a primary wave or compressional wave. These travel very fast. The other kind is called secondary, and is a transverse type of wave, traveling much more slowly than the primary. Again, some waves travel in a straight line through the earth's interior between the source and the recording instruments. Others travel around the earth's surface."

Though his companions were listening intently to the Director, Tony's gaze had been wandering over the room. It was quite early, but he felt he could yawn his head off and longed to get into bed.

"From studying the behavior of these waves geologists have a pretty good idea of how the earth is made up. The outer portion—that in which we have sunk our mines and oil boreholes—is called the crust. It averages some thirty kilometers thick, about eighteen to twenty miles, under the land masses. However, it is much thinner under the ocean floors—perhaps some three or four miles.

"At the bottom of the crust there is a complete change in the structure of our earth. This next layer is called the mantle and through it waves travel very much faster than through the crust. This boundary between the crust and the mantle, which is very marked, is called the Mohorovicic Discontinuity."

"Whew! quite a mouthful," Morrey exclaimed.

"I agree," the Chief said, smiling. "It's usually called 'Moho' for short. Now this mantle beneath the moho is about seventeen hundred and fifty miles thick. The top part, called the upper mantle, is all mixed up, but the lower mantle—that is the last six hundred miles or so—is pretty much the same throughout."

"And then comes the core?" asked Serge.

"Quite right. The next two thousand two hundred miles, down to the center of the earth in fact, is the core. It's thought to be made up mainly of molten iron, though toward the center it is probably solid because of the terrific pressure."

"It must be very hot at the center," Chris observed.

"It's about four thousand degrees centigrade," Sir George replied. "Very hot, but nowhere near as hot as might be expected. As you know, when you go down a mine the temperature increases. This increase according to depth is called the thermal gradient, and is about 20° C. for each mile in the crust."

"So if you took some water down a mine five miles deep it would boil?" asked Tony, now becoming slightly more interested in what the scientist was saying.

"Just about," agreed Sir George, "but the thermal gradient decreases lower down. Otherwise the temperature at the center would be about eighty thousand degrees instead of a mere four thousand. This heat comes from radioactivity."

"And what have you had to do with all this?" Chris demanded.

"It's a long story," sighed the scientist, "and I'll cut it as short as possible. Many years ago it was decided to try to reach the mohole and beyond. This was partly out of curiosity about the structure of the earth, and partly to see if geothermal energy could be exploited."

"You mean the earth's heat." asked Serge.

"Precisely. A minute fraction does make its way to the surface as volcanic eruptions and hot springs. Only a very tiny portion is turned into power. So the idea to bore down to the Mohorovicic Discontinuity by means of what is called the 'mohole' might have commercial possibilities as well as being of great scientific interest.

"Originally it was thought that it would be easier to bore the mohole in the sea-bed, in a place where the crust is known to be very thin. The technique of boring into the ocean floor has been well developed in the exploration for oil, and huge drilling rigs have been constructed for this purpose. Of course there was the difficulty of keeping the rig steady and of guiding the drill back into the borehole through two or three miles of sea. Even these obstacles were overcome and the project began with high hopes. America and Russia both started boring their moholes and all seemed to be going well. America bored off Costa Rica, and Russia in the Bering Sea."

"Did they succeed?" Chris asked.

"Up to a point," Benson answered. "Both bores reached the Discontinuity, went in a little way, and then stopped."

"Why was that?" Morrey and Serge inquired together.

"Because in each place a layer of extremely hard rock was encountered. In neither was the drilling bit able to penetrate. Both the U.S.A. and the Soviet Union tried everything they knew. But it was of no avail. It seemed as if the mohole project had come to an end. Earth seemed to have put an impenetrable wall around her inner secrets."

"Haven't other sites been tried?" asked Chris.

"Yes, any number," Benson admitted, "and the same hard layer was reached. Only in one place has a gap been found."

"Where's that?" Tony asked eagerly.

"Is there any more coffee?" the Director asked. "See if you can squeeze me another cup and I'll tell you."

3

Sir George drained his cup before he spoke again. By now even Tony was hanging on the scientist's words. It couldn't be long, they all felt, before he told them how they were involved.

"For some years we have been making a study of the earth's gravity," Sir George resumed. "Delicate surface measurements have been supplemented by a host of observations from satellites. Almost every square mile of the earth's surface has been studied. Surprisingly, a considerable variation has been found. In some areas gravity is much stronger than in others, indicating masses of dense heavy rock beneath the surface. Then someone had the bright idea of trying a mohole bore in a place where gravity was weakest. In other words—where the rocks were least dense. You'll never guess where that place was found to be."

Sir George looked around smilingly at the intense faces of his four young friends. They had been listening to him with gratifying attention. Now he'd surprise them by telling them just where he'd been working for the last few months.

"Any ideas?" he asked teasingly.

None of the astronauts had a clue. After all, their interest had been among the planets and satellites. They knew little about the studies that had been made about our home planet. Then suddenly Morrey had an inspiration.

"It—er—wouldn't be near Dudley, that town in the Midlands, would it?" he asked innocently.

Sir George was thunderstruck. He remained silent, wondering how Morrey had come to name the location of one of the most exciting and dangerous projects he had ever been concerned with. Then a slow smile spread over his face.

"I trust Mary Greatrex wasn't too upset when my card arrived a little late," he said mildly. When Sir George admitted that Morrey had indeed named the site of the latest mohole, the astronaut confessed that it was the scientist's belated birthday card to Mrs. Greatrex that had set them wondering.

"Satellites had shown, and surface measurements had confirmed, that within the area of this Staffordshire County borough there was an area of exceptionally low gravity. The local inhabitants were not surprised. The town is built on an outcrop of limestone, and is surrounded by old mine-workings centuries old. The area is riddled with huge caves, some artificial and many natural.

"Some thirty years ago part of the local sportsground collapsed into underground workings. Road traffic was affected and the Corporation had to engage mining engineers to make a thorough survey of the whole area. As a result it was discovered that the area was honeycombed to a far larger extent than had been anticipated. As a last hope it was decided to try a mohole boring here."

"Was it successful?" Tony asked eagerly.

"The site chosen for the actual borehole was a wooded area called the Castle Woods. It isn't far from the town center, just beyond the zoo, in fact. Well, the drilling started eighteen months ago, and all went well from the start. As expected, the mohole was sunk through the first three miles of the crust without difficulty. The rock was reasonably soft—porous indeed," Benson said. "Hopes began to rise higher. Unfortunately the crust here was known to be fifteen miles thick—quite a distance to penetrate before reaching the discontinuity.

"At a depth of three miles there was a slight hold-up. A drill broke, and it took nearly three weeks before it could be removed and replaced. Then work resumed, and at eight miles down a layer of hard rock was reached. There was intense disappointment among the men on top. Was this, their last hope, another failure? Although prospects had seemed so hopeful, were they up against the same impenetrable barrier protecting earth's mantle and preserving its secrets?"

"Well?" Tony demanded.

"They succeeded in penetrating the rock," the Director answered. "Apart from the delay in cutting through about a hundred and fifty feet at the eight-mile level, the turbo-borer went through the underlying rock like cheese. As the mohole reached fifteen miles excitement mounted. It reached fever heat as the discontinuity was reached—and passed."

"Was it worth the effort? What did they find?" Serge wanted to know.

"Plenty," replied Sir George. "An entirely new kind of rock, mainly of silicon, was encountered. It showed signs of having been in a molten state several times. The temperature was higher than the crust, being fairly uniform at 450° C. Generally speaking, it was rather hard to cut through, but by no means too hard. So it was decided to continue the bore as deep as possible. This was done until they came to a sudden and unexpected halt . . ."

"What stopped them?" asked Morrey.

"Nothing," Benson answered solemnly.

The astronauts looked at each other, puzzled.

"Then why didn't the borers go on?" Tony asked.

"Because, as I've just told you, the drill encountered—nothing. It had broken into what appeared to be a vast underground cavern just about twenty-one miles from the surface."

"But—how could a cavern form that far down?" asked Chris. "Surely it would have collapsed from the pressure above?"

"So one would have thought," Sir George agreed. "But the fact remains that it's there. As to how it was formed we have only very hazy ideas. The favorite seems to be that earth's radio-activity had raised the temperature beyond the melting point of the rocks. Indeed, it may even have vaporized it. At some time in the distant past a gigantic bubble was formed, and this is now our cave."

"So this gigantic empty space causes the lack of gravity," said Serge.

"Precisely," Benson agreed. "We thought at first that the low gravity area was the result of light rocks. Now we know differently. But we are not certain whether the other low gravity readings indicate underlying caverns. We are sure only about the area."

"How big is this cavern?" Chris enquired. "Has it been investigated?"

A close observer would have noted that the Director of UNEXA was now showing signs of tension, but Chris and his companions were too absorbed in what Sir George had been saying to guess that their old friend was approaching the critical point of his visit to them.

"We don't know how large this cavern is. So far we have been unable to explore it," the scientist said shortly.

"But I should have thought—" began Morrey.

"Yes, I know what you're going to say," Benson said wearily. "You think it should be an easy matter to plumb the depths and measure its extent. Perhaps you will realize the difficulty when I tell you that it's been impossible to tell how far down this cavern extends."

"Surely it's just a matter of lowering a line until it touches bottom," Tony pointed out.

"Don't you think we've tried that?" Benson asked a trifle irritably. "As I've told you, the top of the cavern is twenty-one miles below the surface. We've lowered down a line thirty-five miles long and still haven't touched bottom."

"Then try a longer line," suggested Tony innocently.

"We can't," Sir George Benson explained as patiently as he could. "We cannot make a line strong enough to withstand the pull of more than thirty-five miles of its own weight. No matter what we try, twine, steel wire, nylon, or any of the plastics, it snaps before we have reached that depth."

"So all you know is that this big hole has a ceiling twenty-one miles below the surface and a floor at least another fourteen miles below that?" asked Serge.

"Not quite," the scientist told them. "We've collected samples of the atmosphere from the cavern. As expected, it was largely methane. The pressure was one and a half times that of our atmosphere at the surface. Now this is surprising, and can only mean that the methane in the cavern isn't being compressed to any extent by pressure of the rocks around it. In other words, it isn't the atmosphere that's supporting the roof of the cave, but something else."

"Then it can't be a very big hole," Morrey pointed out. "If it were the ceiling would fall in."

"Not necessarily," Sir George countered. "If there were a system of pillars supporting the roof the cavern could be of considerable extent. In any case, the gravity readings indicate an area of at least twenty square miles of low attraction."

"Whew! some hole!" breathed Morrey. "Quite an underground world, in fact."

For some reason Sir George Benson looked at the American sharply. Chris, who knew the scientist better than anyone else, fancied that somehow Morrey had anticipated something that Sir George was going to say. However, he hadn't much time to speculate, for his old friend was continuing to speak.

"Now let me tell you of something that will take your breath away," Sir George was saying. "Every sample of the cavern's atmosphere was examined very carefully. In two samples evidence of microbic life was found."

He let this astounding fact sink into his listeners' minds before resuming. Then he went on.

"After the first sample had been tested and life had been observed, it was thought that it might have been introduced from the surface by means of our probes. Thereafter vigorous sterilization precautions were taken, just as we do when exploring a planet, and this is the point at which I came in. As you learn more about the work, you'll see how closely subterranean and cosmic exploration resemble each other.

"I was responsible for the sterilization of the next probe sent down the mohole to sample the methane in the cave. Again it came up with some microscopic life, proving conclusively that life existed in this vast underground world. What do you think of that?"

"It certainly is staggering," Chris agreed. "Do you think it is different from surface life?"

"What is its chemistry? Has it evolved independently?" Serge asked.

"One at a time," Sir George urged. "It does seem different from any known type. Its chemistry is certainly different, and my guess is that, even if it originated alongside surface life, it evolved along a different path."

"How can it live without oxygen?" asked Morrey. "You said the atmosphere was methane—that is CH_4—and there's no oxygen in that."

"The little blighters seem to live on hydrogen," the scientist answered, "at least that's how all the evidence points so far."

"An entirely different kind of life!" exclaimed Chris.

"Isn't it ironic—we explore the solar system to find evidence of life in a novel form. The only success we've had has been on Mars and Venus—and these forms are based on the same atoms as terrestrial life. Yet all the time, under our feet, not fifteen million miles away but just fifteen, we find something absolutely new."

"Sir George, will you answer the sixty-four thousand dollar question?" asked Morrey eagerly.

"Fire away. I'll try," the scientist agreed.

"Do you think that there's a higher form of life than microbes in the mohole cavern?" the American demanded.

"I don't know, I really don't," Benson replied candidly. "There may be. I suppose that if a visitor from another solar system explored our upper atmosphere he'd find microscopic life."

"Just as we have in the cavern's upper atmosphere," Tony burst out.

"Yes, but that doesn't mean to say that there are funny little men walking about on the cavern floor," Sir George pointed out.

"But you will explore more deeply?" Serge queried.

"We'd like to. Indeed, we must. The question is—how?"

There was a long pause after the scientist posed his question, with each of the four young men busy with his thoughts. The information Sir George had given them was astounding, but the problem of further exploration seemed insoluble. At least—none of them could, for the moment, think of a solution.

It was Benson who broke the silence.

"Now there's another vitally important reason why we should explore this subterranean cavity," he said. "It's even more compelling than curiosity about this underground life. It transcends a search for commercial or scientific purposes."

With his audience hanging on to his every word, Sir George went on.

"For generations we've exploited underground resources. First it was coal, then oil, then gas. A terrific amount of material has been extracted from subterranean regions. Nothing has been put back. It was inevitable that, sooner or later, the stability of the earth's crust should be affected. We've reached that stage now. Seismologists have been warning us for years, and now they're in quite a panic. The great increase in the number and violence of earthquakes, they say, is a warning that cannot be ignored. Either we find out much more about the underworld, including our cavern, or we must cease extracting coal, oil and gas at once."

"But that would end our civilization!" burst out Morrey.

"It would certainly deal it a severe blow," agreed Benson. "So you see—we must explore our mohole!"

"Surely some way can be found of exploring this underground world," Chris ventured. "What about dropping instrument capsules down the borehole and telemetering information back?"

"We've tried it," Benson answered shortly, "and we didn't get a whisper back. Maybe it's because of communication difficulties, but four attempts have failed so far. I've been working non-stop on the problem for months."

"But you must find some way of exploring the cavern," Tony declared. "If you don't you'll never know about those funny little men, will you?"

"I agree that now we've discovered a new form of life down below we can't let it rest there," Sir George conceded. "And neither do we turn the clock back two hundred years. We've got to find out more."

"But how?" asked Morrey and Chris together.

"Oh, we're not quite beaten yet. We've got a trump card to play."

"What is it?" all four astronauts asked eagerly.

"We're going to send down the most sophisticated instrument it's possible to conceive, and work is going on non-stop with this end in view. At the moment the mohole is being enlarged and lined with a smooth steel tube. When that part of the job is finished, there will be a nice straight hole, twenty-four inches in diameter, right down into the new world beneath our feet," Benson told them.

"What information do you hope to get back?" Serge inquired.

"Obviously the most important thing will be to learn if there are any higher forms of life than those we have found already. Then we must know the extent of this cavern, how its roof is supported and if it links up with others. The rocks and minerals found down below will be of immense interest. Maybe something of commercial importance will emerge. But this mohole and the investigation of the cavern are going to tell us more about the structure of the earth, its origin and history, than anything has ever done before. It will also tell us if we really must go back to horses and carts."

"I'll never feel safe now, knowing that there's such a big hole under our feet," sighed Tony.

"It isn't as bad as that," Sir George told him. "The cavern has been there quite a while and it hasn't fallen in yet. Besides—it might be quite local in extent."

Chris had been silent for quite a few minutes, obviously in deep thought.

"You know," he said suddenly, "this instrument you talk about sending down the mohole to explore the underworld will have to be self-propelling. If it can't be lowered to the cavern floor because of the length of the cable required, it will have to go down by parachute or retro-rocket. And, when its task is completed, it will have to find its way back to the borehole and propel itself back to the surface."

"That just about sums it up," the Director acknowledged. "Those are the lines we've been working on."

"But it would have to be a very complicated instrument to do all that, wouldn't it?" the American asked.

"Yes. The most complicated it's possible to imagine."

"What kind of an instrument were you thinking of?" Chris asked with a sudden premonition.

Sir George's face was set. His eyes were shining brightly. They could all feel the tremendous tumult that he was struggling to suppress.

"A man!" he burst out in a harsh voice.

4

There was a sharp intake of breath among the four astronauts.

"I knew it!" breathed Chris, "And you want to know if we will do the job."

"That's the size of it," their old friend admitted. Then he hurried on.

"After all other means had failed we realized that whatever we sent down that hole would have to be free-moving. It would have to descend, explore, and return under its own power. As I've told you, radio communication is almost impossible, so we need a man to control the probe."

"And you want the four of us to undertake the task?" asked Tony.

"Not the four of you—just one," Sir George Benson replied. "Remember, we have a hole only twenty-four inches in diameter to go down."

In the past the four astronauts had always been together on their journeys into space. It seemed unthinkable that only one of them should venture into this new realm. But a moment's thought showed that circumstances would be very different for this journey into the nether regions. The Director went on to explain.

"The size of the bore—two feet—is the maximum we can achieve. Even this will mean a tight squeeze into the capsule we are designing. Briefly, it will have to be long and slim to house the pilot and oxygen supply. So there'll only be room for one of you—that is if you decide to have a go. Naturally, I don't expect an answer at once. You'll have to know a great deal more about the project before you decide. So—if you're interested so far—would you like to come with me to the Midlands tomorrow?"

There was no hesitation in the reply. Of course they were interested! Of course they would like to go and see the mohole! Hadn't they been unutterably bored for weeks? If Sir George hadn't planned for them another journey into the vast expanse of space which they loved so much, they would be game to venture into the new subterranean world.

"Very well." Benson smiled at the obvious eagerness of his young friends. "A car will be around at nine o'clock in the morning to pick you up. Can you be ready?"

The chorus of assurances that the Director received confirmed his belief that he would not have to look any further for his mohole volunteer. The trouble would be in deciding which one of the intrepid little band would make the descent. It was this same question that lurked in the minds of Chris and his companions as they discussed the mohole venture long after Sir George had gone. Yet none of them mentioned the choice that would have to be made, for each hoped that he would be the one to go.

Long before the appointed time the astronauts were waiting, each with a small grip packed for a few days' stay in the midland town. Though they had talked freely about this new field of adventure and exploration, they had avoided discussing who would be the one to go. It was as if they feared to mention the subject, perhaps hoping that, somehow, all of them could go and be together as in the past.

"Car's here," yelled Tony as he turned away from a window. With a great clatter the quartet raced down the stairs to the front door before the chauffeur had time to get out and ring the bell.

"Where's Sir George?" asked Chris, tumbling into the seat beside the driver.

"I'm picking him up in Theobald's Road. He's at his office."

The car fought its way through the London traffic until it pulled up outside the familiar red brick building. Sir George was waiting in the entrance. He came to the car quickly and squeezed in beside Chris.

"Whew! a bit tight," he complained. "Can you move up a bit."

Chris managed to push a fraction of an inch nearer the driver and the scientist breathed a little easier.

"You must have put on weight during your leave," Sir George chided.

The astronaut was about to give an indignant reply when a horrible thought struck him. Was he too big to fit into the mohole capsule? It would be ghastly if he couldn't quite squeeze in and had to forego the chance of such an exciting and novel expedition. Chris resolved to go a bit easy with the steak, chips and apple pie in the future.

During the journey the Director talked about everything but the business at hand. The astronauts got the impression that he didn't want the driver to hear too much, so they obliged by avoiding the subject. Morrey made a mental note to ask why this exploration was so "hush-hush." None of their spaceflights had security restrictions since there was no longer national exploration of space. Why was Sir George being so tight-lipped about the mohole project, and why had his whereabouts been top secret for the last few months?

The motorway took the little party to within a few miles of their destination. Just before noon Tony caught sight of the ruined castle on the hill-top which was almost in the center of the town. Sir George insisted that they all register at the Station Hotel and have lunch before going to visit the site of the hole.

Maybe it was because the other three had been thinking along the same lines as Chris that the meal was not a success. Each of the four young men only toyed with his lunch. Sir George passed no comment on this uncharacteristic behavior. He still didn't talk about the subject which was uppermost in their minds, but perhaps this was because it was a public dining-room.

"Ready then?" the scientist asked unnecessarily after they had all declined coffee. Without waiting for a reply he led them from the hotel to the castle grounds that had been turned into the zoo.

There was a steady stream of people paying admission and passing through the turnstiles. Children predominated, and there were at least two school parties about to combine a study of medieval and natural history. Benson walked to a large ornamental gate at the side of one of the turnstiles. An attendant inside must have recognized Sir George from a distance, for he was already opening the gate as the little party approached. With a salute he let them in.

"Free admission," grinned Tony, as they followed the Director.

"Perhaps they think we're bringing you along as an addition to the monkey house," Morrey teased the mechanic.

"More likely they think you've escaped from the sea lion pool," Tony retaliated.

Above them, on top of a steep-sided hillock, stood the lichen-covered gray stones of the castle ruins. Between the two rounded towers of the Keep people were passing through an arch toward the courtyard. In fenced enclosures on the hill's steep sides roamed mountain goats and Barbary sheep. The raucous screech of exotic birds came faintly from a distant aviary. Occasionally the deep roar of a lion or tiger sounded over the excited chatter of the school party.

"This way," called Benson, and the quartet followed the Director along a broad path that skirted the castle hill.

"Looks as if this was the moat," observed Chris, noting the depression in the ground that ran alongside the path and around the foot of the hill.

In several places the old moat was used for housing the different inhabitants of the zoo. There was a concrete enclosure with a wire link fence accommodating a dozen or so creatures called coypus. They were like large rats and several of them were swimming in a shallow pool. Farther along there was a bear pit, but the occupants were invisible, being inside their pen.

On the other side of the path was a large cage, the home of the baboons, and farther along were enclosures for camels and llamas. Several of the llamas, heads tilted haughtily in the air, gazed at the astronauts in disdain.

"Gives you quite an inferiority complex, doesn't it?" murmured Morrey as they passed by.

Now they were coming to another bear pit, and two black Himalayan bears were attracting a crowd. Opposite was a miniature railway station. Tony would have loved to linger, but the little party pressed on. They came to a wire fence in a deserted part of the grounds. The scientist unlocked a gate and they passed through.

Though Sir George continued walking, the four astronauts, with one accord, stopped in their tracks. There, rising above the trees, was the huge steel lattice of the drilling rig. It was at least two hundred feet high and reminded them all very strongly of the service gantries that were such an essential feature of every rocket launching pad. But here there was no concrete firing pad. No vast open spaces, no reinforced control room with tracking instruments sticking out at all angles. Instead there was this wooded hill with just a single roadway winding up from the main road half a mile away.

Now the Director had paused for his four friends to catch up with him.

"That, fellows, is the Castle Woods," he called back to the little group.

"It grows some strange trees," Morrey murmured, observing the drilling rig.

The party was reunited and Benson resumed the lead. As they drew nearer the quartet could see that the rig seemed to be perched on top of a building, or rather the building appeared to be crouching at the rig's feet. There were windows and a door through which several men were passing. One caught sight of Sir George and his companions and hurried forward to meet them. He was dressed in soiled white overalls, and wore the regulation helmet on his head.

"Good to see you, sir," he called out, stretching out a hand—also soiled. "You're rather earlier than we expected."

"Couldn't get these chaps to eat much lunch," the scientist explained, then went on to introduce the man in the overalls as Jim Bickel.

"He's the chap in charge of all the work around here," Sir George explained, "but he doesn't do much himself."

"You're joking!" protested Mr. Bickel with a rueful look at his dirty hands and overalls. "We don't sit around all day in armchairs like your rocket men."

"Oh, they have to work sometimes," Benson replied mildly.

"So it's one of you four who will go down the big hole, is it?" Jim asked, eyeing the astronauts critically. "Hope you're not all too big. Can't make the bore any larger to suit you, you know."

Chris and his companions shuffled awkwardly. This question of size was beginning to worry them. Although none of them would confess it to the others—indeed each was hardly aware of it himself—the four friends were becoming concerned about this selection of just one of them. How would it be done, and who would do it? When?

"Like to come inside and see 'Old Moho'?" the engineer asked, oblivious of the uncomfortable glances that had been exchanged between the quartet.

"Can we look down it?" Tony asked eagerly.

"It might be arranged," Mr. Bickel answered with the ghost of a smile. "After all, you've got to become better acquainted with it later on, haven't you?"

He led the way back through the remaining trees to the clearing housing the vast steel derrick and the building crouching beneath. Now they could see that the blockhouse, as it was called, was by no means small. Chris judged that it was at least two stories high and fifty yards long. Only by comparison with the mass of steel towering above had it seemed so modest. Mr. Bickel led the way to the opening directly under the derrick.

The astronauts could see at least a dozen men, each in his steel helmet, inside the blockhouse. Above, on the drilling rig, they could see others on small platforms at various levels. From somewhere within the building came the hum of an electric motor. Their guide beckoned them forward.

"After you, Sir George," Serge said politely. But the scientist smiled.

"No, it's all right. I've looked down the hole scores of times," he said.

With a mounting feeling of excitement the quartet followed the chief engineer into the blockhouse.

How different everything seemed from the control rooms they knew at Cape Kennedy or at Woomera! In faraway Florida, amidst wide open spaces and nestling against long, sandy beaches and a warm blue sea, the vast complex of launching pads and control centers marked the great space port. In Woomera, on the southern edge of the great Australian desert, the pattern was repeated, but on a smaller scale. The countless scientists monitoring the flights sat in comfortable, air-conditioned surroundings. Even the numerous technicians who prepared every rocket for flight were clad in spotless overalls, each with his name embroidered over his left breast-pocket.

Here, in this midland town, not half a mile away from its busy population, was a handful of earnest men clad in soiled overalls and steel helmets. Here there was no air-conditioning, no swiveling arm-chairs, no vast array of fabulous instruments. But one thing united these men—a feeling of excitement that they were all exploring an unknown realm, and that each was helping to push forward the frontiers of man's knowledge.

Though it was daylight, electric bulbs blazed inside the blockhouse. Right opposite the opening—the blockhouse had no door—was a square metal chamber, and into this chamber a gleaming steel shaft entered from the derrick above. Through a gap around the drilling shaft in the blockhouse roof the quartet could see the steel rig towering up, and the faces of one or two engineers peering down at them curiously. Mr. Bickel twisted a handle and opened a door into the steel chamber.

Inside the light was even brighter, and the astronauts stepped inside one after the other. Now they could see the end of the drilling shaft just entering the chamber above them. It terminated in a curious device, the purpose of which they couldn't guess. In the floor, immediately below the shaft, was a circular structure about four feet in diameter and three feet tall. Obviously this was the lid that sealed the borehole.

"Stand around and look through the glass panel," Mr. Bickel instructed the astronauts.

Chris could see that there was indeed a thick glass top on the circular structure. With the others he bent over and peered through it eagerly. They could see nothing. All was black below the glass, but before any of them could register their disappointment, the chief engineer had thrown a number of switches. Immediately there was a startling change below the glass panel. There, illuminated by an intense beam of light, was the mohole!

"Whew!" whistled Tony, and no wonder.

The mohole, lined by a polished steel tube, fell away below them. Two feet wide at the top, it seemed to taper away to nothing in its infinite depth. A cunningly concealed lamp beamed its light down the mohole, and Tony had the impression that he could see right to the center of the earth. Fascinated, the astronauts gazed down the bottomless hole, and they were almost hypnotized by it. What strange underworld did it lead to? What mysterious caverns? What novel forms of life?

Soon one of them would venture down and try to find the answers.

But which one of them would it be?

5

"Seen enough?" the voice of Sir George Benson asked.

With a start the four young men tore their gaze away from that hypnotic hole and straightened their backs to turn to their Chief. More than one felt a pain in his spine, indicating that they'd been bending over the glass cover for far longer than they realized.

"That hole is twenty miles deep?" Tony asked in awe.

"About that," agreed Mr. Bickel. "Then the bottom drops out of it. We don't know what's beyond our bore."

"Is it lined all the way down?" Serge inquired.

"Afraid not," the chief engineer replied. "We've only been able to line the hole for six miles. Even that has been a tremendous task."

"How do you line it?" Morrey wanted to know.

"That's rather a trade secret," Mr. Bickel answered, smiling, "but as you're all joining the project I'll tell you. As you know, the bore was originally much smaller than this—far too small for anything but a snake to go down. It took us nearly six months, working around the clock, to increase the mohole to its present size. The liners are nine feet long and are made in hinged sections. Each liner can be folded to enable it to pass through the one above. It is held by that tool on the end of the drilling shaft. When the liner is in position the tool presses it open, it clicks into place, and another three yards of shaft is lined."

"Ingenious," conceded Chris, "but what's the bore like below the lined section?"

"Fairly smooth," Mr. Bickel told them. "It passes through solid rock and our drilling bit has cut it out nicely."

"What's happened to all the rock you took out of the borehole?" Serge asked. "There must have been a vast amount."

"There was. Quite a mountain of it, in fact," agreed Sir George Benson. "Every fifty feet a core sample was extracted for analysis in a lab we've fitted out at the local Technical College. The rest was carted away and dumped into a series of abandoned sand quarries that lie within a radius of quite a few miles."

"And what about the evidence of life you discovered—the bacteria from the cavern?" Chris asked quietly.

"It had a preliminary examination in our local lab," Benson explained. "Then the samples were taken to Porton for culturing."

"Porton! Isn't that the old bacteriological warfare place?" Morrey demanded.

"That's it. But it's strictly peaceful now," the Director assured him. "I might take you down there with me one of these days."

"How did you get the atmosphere sample?" Serge wanted to know.

"We used a device with which you're all quite familiar—an automatic trap. It was lowered as far as we could go with safety. After it took in the sample and sealed itself up, we hauled the trap back again."

The astronauts knew about autotraps. They'd used them many times to find out the composition of planetary atmospheres. Here was another instance where their own field of activity was aiding this new venture.

"Like to look over the rest of the place?" Jim Bickel called.

Chris and his companions indicated eagerly that they would, so the chief engineer conducted them through the rest of the building. There was a small room full of instruments, reminding them of a small, grubby edition of the gleaming palaces of the Cape and Woomera. There were sleeping quarters and a rest room for the crew. But the part that interested them most was the winding room. Here, driven by a powerful electric motor, was a vast drum the height of the building. On it was wound a thin shining thread of steel.

"Forty miles of it," the engineer said, noting their interest. "When we want to have a dip down into the mohole we swing a pulley over the bore, replace the glass cover with one allowing the wire to pass through, fasten whatever we want to the end of the wire and lower away."

"You have to keep the bore sealed?" Chris questioned.

"Yes. The methane comes up, as its pressure is a bit above that of the atmosphere. It's a nuisance, but we cope," Mr. Bickel assured him.

Then the astronauts followed their new friend up on to the steel derrick. There they saw the rest of the drilling shaft and the mechanism for driving it. Another powerful electric motor was the motive force. Gears, sleeves, valves and bearings were all over the place. Agile men with grease guns and smutty faces gave the visitors friendly grins.

Before returning to the Station Hotel, Sir George Benson took his young friends to the Technical College less than five hundred yards away. There they went into the laboratory that had been specially set aside for the Mohole Project. White-coated men and women were poring over racks of sealed test-tubes and peering down microscopes. Sir George introduced the quartet to Miss Bevers, a spectacled woman of indeterminate age, who was the chief biologist.

"Can you give them a brief account of our discoveries so far, Miss Bevers?" Sir George asked her.

"Certainly," the reply came in a pleasant voice. "These little fellows are quite unlike any of their distant relatives on the surface."

She turned and pointed to a large sheet of white paper fastened to the wall.

"On the left hand side the main types of bacteria found on the surface are drawn," Miss Bevers explained. "These are called rods and are the most numerous. As you see, their name is quite descriptive—they're straight and look like short rods. Now this next kind is called streptococcus—little globules joined together in a chain. As you see, the chain is in one plane only. Straphylococci is the name given to this next type. They're little globules again, but this time they can be in any plane. This next type is called spirilla and the name fits it very well, don't you think? Finally we have this kind called vikrios and they look like small crescents."

Miss Bevers paused for her audience to note the shapes of these tiny forms of life. Then she pointed to the right hand side of the drawing.

"So far we have identified three main types of subterranean bacteria," she went on. "We haven't given them names yet, only numbers. Type One resembles a disc but has a distinct hole in the center. Type Two is just like a very small cross. Occasionally we have found five arms to the cross instead of the usual four. This last, Type Three, is a largish oval body with little buds sprouting from it.' Now perhaps you'd like to see them through a microscope."

Chris and his companions asked if they could examine these strange creatures more closely, and Miss Bevers called some of her assistants over. They had evidently been expecting such a request, for each of the astronauts was taken to an instrument which was already prepared.

"They're moving!" declared Tony as he peered down his microscope.

"Yes, we have live specimens for you," agreed the young man at his side. "If you watch carefully, you'll see how they divide and multiply."

"There's a Type Three, I think it is. One of the buds has broken off. It's growing and sprouting buds of its own," the mechanic called, his eye still glued to the instrument.

It was with reluctance that the four friends took leave of the biologists when Sir George insisted it was time to go.

"You'll come again," he promised as he led them away.

Back in the hotel lounge the astronauts were rather silent. They had had a peep into a new world. Deep down beneath their feet was a vast new territory to explore. It was unthinkable that man should not investigate this new domain, just as it was impossible to halt his march forward among the stars. The mohole must not be sealed off and forgotten. Even though the forms of life discovered there might be strange—even dangerous—the questing spirit of the human race would know no rest until the secrets of the underworld had been revealed. Here, a few hundred yards away, the entrance to the subterranean world beckoned. One of them must answer its call.

"I take it you are willing to take on this new venture?" the voice of Sir George broke into their thoughts.

"Why—yes, of course," Chris answered, and he knew that he spoke for all of them. "Can you give us more details of the plan?"

"Very well!" the scientist agreed. "The capsule—it's really a rocket—is being built at this moment. As you know, it's two feet in diameter, and twenty feet long. The cabin that one of you will use is at the top. Below is the oxygen tank and the rocket motor. There are a minimum of instruments aboard, as room is the great problem."

"Haven't you forgotten the fuel tank?" Morrey asked.

Benson smiled.

"No, you're not having one," he replied. "The plan is to use the methane of the cavern's atmosphere as the fuel. By that means a great deal of space can be saved. The methane will be sucked into the combustion chamber and be mixed with oxygen from your tank."

"Won't there be a fantastic explosion when the rocket motor is fired?" asked Tony.

"You're thinking that the methane of the atmosphere will ignite? No, there's no fear of that. Methane can only burn in the presence of oxygen, and we'll take jolly good care that the only oxygen about is carefully sealed in the tank and the cabin."

"What's the—er—flight plan?" Serge wanted to know.

"Yes, I suppose you could call it a flight plan," the Director agreed, "but it will be the reverse of all your other jaunts. The capsule will be loaded with the required oxygen, and the batteries charged. Incidentally, once in the cavern a special fuel cell using methane will provide all the power you need. When the pilot has entered his cabin, the capsule will be hoisted over the bore and then released. It will fall down the mohole under gravity until it enters the cavern. Then the rocket motor will be switched on at low power to lower the capsule gently the rest of the way."

"And you've no idea how far down that will be?" inquired Chris.

"No. As I've told you, we didn't touch bottom at thirty-five miles."

"What happens when—whoever it is—reaches the bottom?" Tony put in. "Will he go outside and explore?"

"Probably. That will be left to his discretion," the scientist answered. "Of course he must get atmospheric and rock samples, but that can be done without leaving the capsule. If he decides to venture outside—he'll be wearing a kind of space suit, of course—he'll have to be careful how he moves about."

"And how will he get back?" asked Morrey.

"The capsule should be almost vertically beneath the bore," Benson replied. "But we shall send an infra-red beam down the hole and the capsule has a sensor. When the rocket motor is fired to lift off, the capsule will find its way automatically to the bore."

"What happens when the capsule re-enters the bore? Isn't there a danger of the rocket motor shooting it up through the derrick like a bullet out of a gun?" Tony questioned further.

"And blast you off into space? No, we've foreseen that possibility," the Director told him. "We don't want you to explore underground and then the moon on the same expedition. There's an automatic device, opened by atmospheric pressure in the borehole, that will cut down the motor. The capsule should come to rest about ten feet down. Then we'll drop a hook and fish it out."

"Can you tell us when the descent is to be made?" asked Chris.

"I'm afraid there's still a great deal of work to be done," confessed Benson. "It's mainly on the capsule and on the protective suit. The borehole itself is ready, and the chaps up on the derrick are almost finished, too. They've been preparing it for a sudden change—sending down a line in case of emergency, suspending the infra-red projector a little way down, and lowering the fish-hook when the job's done. I should say it will be another six to eight weeks."

Those seemed to be all the questions the four young men wanted to ask the Director—except the one that was secretly uppermost in all their minds. Which one of them would go?

"Er—have you decided when you'll choose among us?" Chris asked as calmly as he could.

"Do you all want to be considered?" Sir George asked quietly, but he knew there was no need for a reply.

"Very well," he went on. "I promise you that the choice will be made within a week. That will put an end to your suspense, won't it? Of course, size is going to be a very important factor, as you know. Tomorrow I'll take you to the factory where the capsule is being made. For a start we'll see which one of you fits into it best."

After that Sir George changed the subject. Even if they'd talked all night there was little further information he could give them at this stage. It would be better to divert the thoughts of the four famous astronauts than to let them dwell on the disturbing choice that must soon be made. By a happy chance he mentioned the name of their mutual friend, the ex-Wing Commander, Whiskers Greatrex.

"Yes, he's well enough," Serge told the scientist, "and so is Mrs. Greatrex. He looks a little older, but not very much."

"You know, I'll bet he'd give away his beloved mustache if he could have a finger in this mohole project," Chris said earnestly.

"Yes, he doesn't take kindly to retirement," agreed Benson. "I wonder if we could use him?"

"Please, Sir George, can we have Whiskers to look after us?" Tony pleaded.

"Wouldn't be a bad idea to get Tony a nursemaid," Morrey said, grinning. "Might help a mite to keep him out of trouble."

"We'll see, we'll see," Benson said hastily. "He might be busy just now."

"I believe there's a telephone in reception," Serge interposed with a discreet cough.

"Come on, chaps," yelled Tony, racing toward the lounge door, and before the Director could protest the astronauts had rushed from the room and were clattering toward the reception desk. Chris was fumbling to pull out a pocketbook with the Greatrex telephone number. The four of them just managed to squeeze into the phone booth. With a struggle Chris freed his arms. Then there were further efforts while the four searched their pockets for small change. They pooled the result and Chris dialed the number. He held the receiver away from him so that they could all hear the ringing tone. It went on so long that they began to think the Greatrexes were not at home. Then the receiver at the other end was lifted.

"Hello, Aylesbury 2791," a familiar voice said, "Greatrex speaking."

"Whiskers! How are you, you old so-and-so? Chris Godfrey speaking."

"Chris! Good to hear you. How are you, young fellow-me-lad? How are the others?" the voice asked.

"Fine. Listen, Whiskers. Are you busy for the next few weeks? Would you like to be in on something?" Chris asked, and his friends strained to hear the reply.

"Off on another trip around the solar system? No, of course I'm not busy. Only wish I were. You know I'd like to be in on something with you. Where are you?"

"You'll never guess. Hang on a bit, Whiskers. I want to go and have a word with Uncle George," Chris said.

He struggled out of the phone box, leaving his friends to talk to Whiskers, and walked quickly back to the lounge where the scientist was waiting patiently.

"He's free," Chris called to his Chief. "He'd love to come. Can I ask him?"

"I suppose so." And Sir George sighed with an air of resignation. "Tell him to make his peace with Mary, pack his bag, and be here sometime tomorrow afternoon."

In a flash Chris was making his way back to the public telephone. He fought his way in and wrested the receiver from Tony.

"It's all right," he called. "Be at the Station Hotel, Dudley, tomorrow afternoon."

"Whacko!" the joyful voice shouted at the other end of the line, and Chris replaced the receiver happily.

6

"We haven't far to go," Sir George Benson explained to Chris, Morrey, Serge and Tony as they were having breakfast together the next morning. "The capsule is being made at a large engineering plant about five or six miles away."

"Quite handy, then," observed Morrey.

"Yes, indeed," the Director agreed. "Of course it isn't as complicated a piece of apparatus as your usual vehicles, but it's a smart piece of work, nevertheless."

They all squeezed into Benson's car, which was waiting in the parking area at the rear of the hotel. As they drove out into the road Sir George turned left, then right through some traffic lights, then left again along a dual carriageway.

"You know the way pretty well," Tony remarked from the back seat.

"I should," the scientist replied. "I must have traveled along this route at least a hundred times while the capsule was being built. I shouldn't be surprised if the old car could find its way unaided."

For several miles Sir George followed a complicated route, past hundreds of small houses and factories of all sizes. As they motored along, Chris wondered what life would be like if oil supplies were suddenly stopped. There would be no cars, buses, trucks or any kind of internal combustion engine. He could understand the need for the greatest secrecy. Besides being scared of the Unknown beneath their feet, people would begin panic-buying of petrol and oil. The economy would be upset and essential services would run short. No wonder Sir George looked serious as he drove along. After about a quarter of an hour he told them that they were nearly there.

"That's where we're going," he said, indicating an orange-painted truck which they were following.

"Rubery Owen's!" exclaimed Morrey. "I thought they made racing cars."

"That's only one of the firm's activities," Sir George explained. "Actually R.O.'s, as it's called locally, is a vast engineering complex made up of many companies, all specialists in their own fields. We're going to the head office to meet the big chief himself."

For the last few minutes there had been factory buildings on both sides of the road. Then they came to the office area. In front there was a driveway for visitors' cars to pull in for unloading. A magnificent commissionaire, who obviously was also an archduke at the very least, emerged through swinging glass doors to bid them welcome. At an imperious sign from the archduke a lesser mortal, dressed in a chauffeur's uniform, appeared. He was to put Sir George's car into the parking area while the noble person who condescended to act as a commissionaire, personally conducted the Director and his party to the Chairman's private office. Phone calls must have been made from the entrance lobby warning the Chairman that visitors were on the way. After a sharp knock on a huge mahogany door the commissionaire flung it open and in ceremonial voice announced:

"Sir George Benson and party to see you, sir."

The scientist, closely followed by Chris and his companions, stepped into the deeply carpeted office. A tall man had risen from a vast desk and came forward to shake hands.

So this is the great industrialist! thought Chris as the

Chairman greeted Sir George. The tall man had heavy features and thinning black hair and wore quite ordinary clothes. But it was the steely gray eyes that were his most striking feature. They seemed rarely to look at a person, but rather to gaze through him.

Sir George introduced the astronauts, and when the Chairman shook hands, Tony noticed their extreme size. Here was a man, he thought, of great strength of body and mind. He would have to be, wouldn't he, to be head of a great industrial organization like R.O.'s. The mechanic gazed around the office and noted with interest that there were a number of glass cases, each covering magnificent models of engines made by the firm. He moved over to inspect them more closely while Sir George and the Chairman were talking.

Morrey's attention was attracted to the shining miniature racing car that held a place of honor on the big desk. From that his eyes wandered to the photographs on the walls—most of them of motor races, showing the Chairman beside one of the firm's cars. Several times, Morrey remembered, this famous car had won world championships and it was all recorded on a silver honor board behind the Chairman's desk.

Serge was fascinated by the telephone, with its row upon row of buttons, that occupied nearly all the left hand half of the desk. This, he guessed, was the instrument that brought the Chairman into touch not only with all the departments of the main works, but also by direct line with each of the factories in the organization. How wonderful it must be, the Russian thought, to hold a conference of top executives scattered all over the country without moving out of this comfortable office.

The thing that caught Chris's attention was a huge chart on the wall opposite the street window. It was in the form of a "family tree," and showed all the ramifications of this industrial empire. Against each company in the "tree" was a neat panel listing its main products or activities. Chris whistled as he read one after another. There was very little that the R.O. combine didn't do. And the skills of all these highly specialized companies, the experience of their best men, were within instant reach of the Chairman. The press of a button would bring the voice of one or more of his top men into this quiet office. It was a wonderful set-up. Chris could sense the immense power of this man who was talking quietly to Sir George.

"The capsule is almost finished," the Chairman was saying to Sir George. "I've no doubt you would like these young men to see it."

"They would be very disappointed if they didn't," the Director answered.

"We mustn't let that happen," the big man said with the ghost of a twinkle in his grey eyes.

He pressed one of the buttons on his desk and after a few seconds a voice answered.

"Stevens here, Sir."

"Ah! Stevens. I'm bringing over Sir George Benson and party to see how we're progressing. Be with you in six minutes."

Then the Chairman pressed another button and this time a woman's voice answered.

"Miss Fairclough, I'm going along to K department. I'll be there for an hour if I'm wanted," he told her.

"Very well, sir. I'll only call you if it's urgent."

"She's a perfect secretary," the Chairman confided. "Now perhaps you'll all follow me."

It was quite a job to keep up with the tall industrialist. His long, brisk strides carried him from his office, along a corridor and through the entrance lobby at a terrific pace. The archduke moved with unbecoming speed to open the glass door for his chief, and the little party marched out into the road and into a light shower of rain.

Oblivious of the weather, the Chairman raced along the road for a hundred yards before entering another gateway. A little knot of white-coated men were waiting by a door into the workshop. Without a pause the Chairman ploughed through the group and into the building. There another man in a neat lounge suit was waiting. This was Mr. Stevens, the project leader. The Chairman greeted him with a curt nod and sailed on.

By this time there were at least a dozen people, including the visitors, trailing the industrialist. At the same headlong pace he led his retinue through the shop to another door on which was painted a large red letter K. He flung it open and everyone followed him inside. In the center of the workshop, suspended from an overhead crane, was the capsule!

A little breathless after their swift progress, Chris, Morrey, Tony and Serge gazed at the tall slim cylinder. How like—and yet how different—it was to the towering monsters in which they had roamed the solar system. Though the gleaming metal skin reminded them of the huge shining rockets, how tiny this capsule seemed by comparison. But of course this was designed to venture into a different kind of world. And not to take a team of astronauts, but just one man!

The Chairman broke into their thoughts and invited the visitors to inspect the capsule. It looked very much like what they had expected, being some twenty feet tall and twenty-four inches in diameter. However, on going closer they could see that the sides of the capsule were not smooth like the sides of the more familiar rockets. Instead, there were small grooves running from top to bottom all the way around. At first Chris was puzzled by this, but then the reason, afterward confirmed by Sir George, flashed upon him. These grooves were to let them fall down through the methane in the shaft. Without them the capsule would be like a cork in a bottle. With them the capsule could pass down the mohole, letting the gas flow up around it through these grooves.

The base of the capsule was in the form of a small rocket motor, and above that would be the storage tank for liquid oxygen. Right at the top was an open hatch indicating the cabin. It looked ridiculously small to accommodate a human being, let alone any instruments. And how would the pilot be able to operate, for there wouldn't even be room to move his arms?

"Like to go up and have a look?" the Chairman asked.

The quartet felt a strange reluctance to accept. Not that they weren't burning with curiosity to see the inside of this strange vehicle, but each had a fear that a critical moment was upon them. Each worried that he would be too large to squeeze inside.

Serge, perhaps had the least to fear. The Russian was the slimmest of the four. Chris and Tony were approximately the same size, while the hefty Morrey had the broadest shoulders. Now that the moment of decision was at hand, the thoughts of the four friends were remarkably alike. Each wanted to be the one chosen for this strange new venture, but each dreaded the disappointment that would be caused to his friends. So close to each other were these four young men that their conflicting feelings were finely balanced.

"Well, don't you want to go up?" the voice of the Chairman was asking a trifle impatiently.

A large two-sided step-ladder, terminating in a small platform at the top, had been wheeled against the capsule by some of the mechanics. It was waiting for the quartet to ascend.

"Here goes!" muttered Chris to himself. He stepped forward and began to mount.

The astronaut could feel the eyes of his companions upon him as he climbed the sixteen steps to the platform beside the open hatch. He looked inside the cabin, and at once he was filled with curiosity about its novel instrumentation. Because whoever was pilot would be forced to keep his arms to his sides, there was a series of switches low down in the cabin. Then, at what Chris judged to be eye-level, there was a panel of tiny dials and indicators. There were also two eyepieces which were obviously part of an optical instrument with which to see outside the capsule.

Sir George Benson couldn't have been a close friend of the four astronauts for so many years without guessing what was going through their minds. It grieved him that he could use the services of only one of them, and he knew quite well what the others would feel. Yet a decision had to be made and the sooner this was done the better. He looked up and saw Chris hesitating on the platform. With the permission of the Chairman Sir George had a quick word with the project chief, Mr. Stevens. Then he called up to the astronaut above him.

"Chris, I want you to get inside and close the hatch behind you. Mr. Stevens will tell you what to do," he said.

Chris looked down at the knot of people, including his three fellow astronauts, on the shop floor below. Strangely, he found he couldn't call back. He just nodded his head and waited for further instructions. The project chief came to the foot of the steps.

"Step inside with your left foot first. You'll see two footholds on the floor of the cabin. Place your left foot in the left foothold before you attempt to bring your right foot in. After your left foot is in position put your head inside the hatch, followed by your left shoulder. As the rest of your body follows you'll have to turn slightly to the left to finish up square with your footholds. Finally, bring in your arms and then your right foot, which must fit firmly in the right foothold.

"Don't bother about anything else at this stage," Mr. Stevens went on, "but you should be able to feel a knob in front of each knee. Pressure on the right knee will close the hatch, while the left one opens it. Can you remember all that?"

"I think so," Chris answered a little uncertainly. "I'll have a go."

Watched tensely by his companions twenty feet below, Chris followed his instructions carefully. It was as he was squeezing his left shoulder through the hatch that he had one awful moment when he thought he wouldn't make it. But he did, and at last he was standing upright inside the cabin. He could feel the walls all around him, and two inches before his eyes were the small dials. Now he could see why they had been kept so minute. Anything large he wouldn't have been able to read. Letting his fingertips explore, Chris could feel the switches that he'd seen before getting inside, and he wondered what each of them was for. With a heart beating rather faster than usual he bent his knees slightly and could feel the knobs Mr. Stevens had told him about.

"Everything O.K.," Chris called back, and his voice sounded very strange in the enclosed space.

"Fine," he heard Mr. Stevens reply. "Now would you like to close the hatch? The right knob, remember."

The project chief's voice hadn't been very distinct, but Chris made out what he was saying. He paused a moment, and then he heard Mr. Stevens calling again.

"Don't keep the door shut many seconds. The oxygen supply isn't on," he heard the man say.

Though he didn't know it, Chris took a deep breath before pressing on the button he could feel against his right knee. At once he heard the hatch slide shut and he was in the most intense blackness and silence. There was no need for Mr. Stevens to warn him not to stay inside too long. He felt as if he were sealed inside a coffin. Desperately he pressed forward his left knee. What an intense relief it was to see daylight again as the hatch slid open. He let out his breath with a gasp.

"Reverse the process for getting out," Chris heard Mr. Stevens calling. "Right foot, twist, right shoulder, head, then the rest of you."

Gratefully, Chris followed his instructions, and ten seconds later he was standing on the platform outside. He felt an intense sense of relief. It was not so much being out of the tiny cabin—training could accustom him to it—as that he was still in the running for choice as pilot of the capsule. He clattered down the steps to the greetings of Sir George and the other three.

The Director had a quick word with the industrialist at his side. It would be best, Sir George decided, to let each of the astronauts try the cabin. If one of them was too broad it would be better not to prolong the agony of suspense and eliminate him at once. The Chairman silently nodded his agreement.

"Who's next?" Sir George asked briskly.

Serge volunteered to follow Chris, and the Russian had no difficulty in squeezing into the cabin and closing the hatch behind him. He returned to the shop floor obviously delighted at his success. Almost before he'd left the steps Tony was clattering up them. He could bear the suspense no longer and was determined to put himself to the test. Like Chris, he just managed to squeeze in. Then it was Morrey's turn.

The American's face was taut. Had he some premonition of the result? Steadily he climbed the steps and as he did so the chatter of his companions and the men on the ground faded away. There was a deathly silence as Morrey paused before that fateful opening. No one could see his face as he lifted his left foot and put it inside. Neither could they see his expression as he followed the now well-remembered routine. Gamely he tried to climb inside. He couldn't. Chris's heart ached for the cruel blow to his friend.

The silence continued as Morrey at last extricated himself from the hatchway. Looking pale and with eyes glistening strangely, he turned to descend the steps. How he managed it the American never knew. The silent but warm pressure of his companions' arms about his shoulders conveyed their sympathy.

Morrey knew now that the chance to go down the mohole could never be his.

7

It was plain to Sir George that Morrey had taken his elimination badly. The scientist sighed. There would be two more of his young friends who must suffer the same bitter disappointment. The sooner the final selection was made, the quicker would the little band accept the situation. He could see that until then there would be strain between them. Perhaps it had been a good idea after all to rope in old Whiskers. He was always a great help in times of stress.

"Are those more capsules?" Morrey asked suddenly. His question was really to show the others he was all right rather than to call attention to the long slim structures that were grouped together at the end of the building.

"Yes," agreed the Chairman, "at least they are the shells of capsules. While the job was tooled up we made half a dozen in case of faults developing during later stages. Actually only one of those you see is anything near completion."

Morrey had a strong impulse to ask if he couldn't try to get into one of the other capsules, but reason told him they were all the same size. He struggled gallantly to regain his composure, and at last he succeeded. Greatly relieved, Sir George thanked the Chairman for sparing his time and then led his little party back to the car park.

"We'll get back to the hotel," he said as he slammed the car door. "Whiskers should be here fairly soon."

Lunch was a scrappy affair, for Tony, Serge and Chris were again only toying with their food. Whether it was because, as far as he was concerned, the die was cast, or it was to show his friends that he was all right, Morrey proved that his appetite had returned. Indeed, he seemed quite light-hearted now that he was out of the competition. He had nothing to worry about. It was Chris, Tony and Serge who must do the worrying.

Yet it wouldn't be correct to say that the American was indifferent to the concern and uncertainty that his friends must be feeling. Two of them, he knew, must suffer the same bitter disappointment that he'd just known. It hadn't been pleasant, and Morrey only wished that it could be avoided.

"I wonder what time he'll get here," Tony remarked as they wandered about the entrance lounge. Every few minutes he would push through the swing doors and gaze up and down the street. It was almost half past two before a honking motor horn caused the quartet to race to the door. Only one person they knew used an old-fashioned horn sounded by squeezing a huge rubber bulb. Outside, sure enough, a delighted Whiskers was squeezing away like mad.

The ex-Wing Commander's car was a battered red roadster that always seemed to be giving him trouble. Indeed, it was now one of the former officer's main occupations in life to keep the Red Peril in running order. Nevertheless it had made the journey from Buckinghamshire to the Midlands without any really vital parts dropping off.

The four astronauts were so glad to see him they almost lifted their old friend from the Red Peril. Beneath the flood of questions and talk was a feeling of relief that good old Whiskers had come on the scene. None of them was quite sure how he would react over the selection of the mohole pilot. Even Morrey, for whom the decision had already been made, welcomed the ex-officer wholeheartedly, for beneath his bluff exterior, Whiskers was a shrewd, practical psychologist. He would be able to set the whole problem in its right perspective. It would be great to have his sound common sense available.

To the amusement of Sir George Benson, the little band of friends came to the hotel steps like a rugby scrimmage and became hopelessly entangled in the revolving door. Eventually they arrived, still laughing and talking together, in the entrance hall, where Whiskers had a more sedate welcome from Sir George.

"Have you eaten?" the Director managed to ask.

"Had some sandwiches on the way," Whiskers replied.

"All right. Well, now, you four take his bags to his room and do his unpacking. I want to describe what's happened so far," Benson said. "It may take me a little time, so don't hurry back."

Obediently Chris and his friends obtained the keys to Whiskers' room from the hall porter and carried to it the two battered suitcases they'd retrieved from the car. Then they stowed away his belongings in the wardrobe and the various drawers—not failing to comment on the brilliant hues of their friend's pajamas.

"Purple and lime green," Morrey exclaimed. "I wonder he gets any sleep at night."

"Let's welcome him with an apple-pie bed," suggested Tony.

Whiskers would certainly have thought there was something wrong if the quartet had not played tricks on him. Otherwise how could he retaliate, and how could they have the fun and games which were always such a help in times of stress?

It didn't take the astronauts long to strip their friend's bed and fold the sheets so that he would get only half-way down into bed. He'd have to strip it before he could get to sleep. Carefully Chris and company made up the bed again to look as if it hadn't been disturbed.

When they returned to the lounge Sir George and Whiskers were still talking earnestly.

"Are we in the way?" Chris asked innocently.

"No. No secrets, really," the Director said, smiling. "I thought I could do the briefing more quickly if we were alone."

"One thing's certain," Whiskers told them, "we've got to invent a new name for you—at least for this trip. We can't call you astronauts, can we?"

"That will affect only one of us," Morrey pointed out, a trifle sadly.

"Nonsense," boomed the ex-officer. "It's all or none. Don't you agree?"

They did, so they spent the new few minutes cudgeling their brains for an appropriate term.

"I have it!" Whiskers suddenly burst out. "What about 'Subterranauts?' "

"I suppose that's as good as any other," the Director acquiesced. And so, for this venture, the astronauts became the subterranauts.

They talked far into the afternoon, until at last Whiskers asked, "Isn't anyone going to show me this bit of a hole of yours?"

"By all means. Will you take him, Chris?" Sir George asked. "I have some work to do here."

As they crossed the road to the zoo entrance they were like a band of happy schoolboys, so cheering was the influence of the man with the mustache. Morrey seemed to have overcome his personal disappointment, for he was as noisy as the rest of them as a wide-eyed attendant saluted and let them into the Castle grounds.

Though they were bound for the mohole, Whiskers and his guides found it impossible to hurry past the animal cages.

"That llama has a face just like an aunt of mine. I wonder if they were related?" Whiskers asked thoughtfully.

"Thought you might be a kin to the coypus," Tony said mischievously. "They have mustaches too, you know."

It was Chris who broke up the ensuing scuffle and insisted that the party become serious. Then he ushered them through the gate into the Castle Woods, and on through the trees until the derrick of the mohole project stood before them.

Sir George Benson must have phoned the block house, for Mr. Bickel was at the entrance waiting for them. Chris introduced Whiskers and then proceeded to show the ex-Wing Commander over the building. Of course the borehole itself was the most fascinating object, and an unusually serious Whiskers gazed down its fearsome depths until Chris called him away. The little party made its way back through the zoo grounds more soberly than it had come. They all wondered what dangers lurked at the bottom of that great hole that one of them would have to face.

After dinner that night Sir George Benson and Whiskers Greatrex had a long talk while the subterranauts were in the hotel games room playing billiards.

"It's this selection that I dislike," the Director confessed. "You know as well as I do that these chaps operate as a team, each doing a specific job besides helping to sustain and encourage the others. What one of them, alone, will be like I don't know. Unfortunately there's no question of sending down more than a single pilot."

"Whom do you fancy for the job?" inquired Whiskers. "Chris?"

"I suppose that would be the rational choice," the scientist agreed. "He's been the leader for some time. He's the most experienced and versatile. But that isn't everything. Will he fit into the capsule?"

"I thought he'd been inside," Greatrex said in some surprise.

"Ah, yes," Sir George agreed. "But not in a protective suit. We've reduced the bulk as much as possible, but it will still add an inch or two to the girth of the wearer. Remember it will be quite hot down there, and there's a minimum of insulation below which we dare not go."

"When do you mean to decide?" asked Whiskers. "I think it ought to be as soon as possible."

"In the morning," replied Benson. "A protective suit will be at the factory, so we'll all go along after breakfast to settle the matter."

"What happens if they're all too large to get into the capsule?" Whiskers asked.

"We'll just have to find someone else," Benson sighed, "and it won't be easy."

"What will the others do while one of them is down the mohole?"

"That's where you come in," the Director told his old friend. "You've got to keep them happy, Whiskers."

"You two are having a long talk," Tony said, coming into the lounge. "What about some billiards? Morrey wants to fix up a match."

"We've just about finished," Sir George said, getting up, "but as to billiards, I don't know. It's been a couple of years since I played. Afraid I'm a bit rusty."

"Never mind," Tony replied. "We'll put you on the same side as Whiskers. He's an expert, you know."

"Oh, I wouldn't say that," Greatrex grinned modestly as he, too, stood up. "Though I do confess to a game or two now and then."

Tony led the two older men to the games room and soon a very earnest game was in progress. Just before midnight Sir George insisted on breaking up the party. His team had lost ten shillings to the jubilant Tony, Serge and Morrey.

The next morning over breakfast, Sir George broke it to his young friends that the final choice of the mohole pilot would be made that morning. They were to go out to the

R.O. works and Chris, Tony and Serge would put on a special suit. Then would come the critical test when each young man entered the capsule. The three concerned fell silent, but Whiskers and Morrey filled the gap. Though he still regretted being out of the running, the American was much more cheerful than he'd been since his disappointment. Soon he'd be helping two of his colleagues to accept the situation as gracefully as possible.

Sir George drove Morrey, Serge and Tony, while Chris squeezed into the Red Peril beside Whiskers. Within a very short time the two cars were pulling up outside the R.O. offices.

"Mr. Stevens is waiting for you, Sir George," the commissionaire announced in his best manner as the little party piled out of the cars.

"The Chairman away?" asked the Director.

"Yes, sir," the resplendent officer replied. "He flew to South Africa this morning. He's never in one place for very long."

"So I gather," Benson said with a smile. "He once told me he averaged over half a million miles a year."

"We can beat that," Tony murmured. But the commissionaire's haughty frown showed that he'd heard.

"Ah, Mr. Stevens!" Sir George exclaimed as the project chief came hurrying into the reception hall.

"Hope I haven't kept you waiting," Stevens said a little breathlessly. "I have everything ready."

"We've only just arrived," Benson assured him. "Oh, Mr. Stevens, this is Mr. Greatrex, who will be keeping his eye on these young men."

"Just acting as nursemaid," Whiskers grinned as he shook Mr. Stevens's hand. "They need someone to control them."

The project chief laughed at the rude comments that this remark brought forth. Then he led the way to the workshop they had previously visited. Whiskers examined the capsule with interest. He could see why size was important. The little cabin looked very small to hold any human being, let alone one of these husky young men.

"Will you come this way?" Mr. Stevens asked a few minutes later. He led the party to a small room where they saw the suit laid out on a table. In some ways it was similar to suits that they had worn in space: the helmet with its oxygen tubes, the wires leading from various parts of the garment, the shiny silver color. In other ways it was different. Its main purpose was not to keep pressure in, but to keep heat out. Down in the depths of the earth there would be no vacuum. Instead there would be heat—heat that would make a man's blood boil in seconds. Only with the aid of this heat-resistant apparel could anyone survive in the regions where one of these young men must venture.

"You first, Chris?" Sir George asked quietly.

In the same tone Chris replied, "Very well."

With the assistance of two of Mr. Stevens' men Chris, after removing his own clothes, carefully donned the protective suit.

"Do you want him to put on the helmet?" Mr. Stevens asked Sir George.

"No, we needn't waste time with that," the Director answered shortly. "Get up into the capsule, Chris."

Chris made his way deliberately to the open hatch. He kept repeating to himself the well-remembered instructions. "Left foot, place in foothold, left shoulder, right foot, right shoulder."

He must do it. He must get inside this tiny cabin. More than anything on earth Chris wished then that he was much smaller. He remembered that as a boy at school he had been very slight indeed. It had been his diminutive stature that had first brought him in touch with Uncle George. It had been because he was tiny for his age that he'd been crammed into one of the small rockets that were then in use. If only he could turn back the clock. . . .

Carefully Chris fitted his left foot into its correct place.

There was silence in the workshop as he followed with his left shoulder. Pulse racing, he managed to get in his right foot. Then he knew he was finished. Desperately he struggled to force the rest of his body inside. A call from Sir George to come down only spurred him to make a last effort. He managed it, but it hurt tremendously.

"Now close the hatch," the voice of Sir George called from what seemed hundreds of miles away. It was then that Chris admitted defeat. So tightly was he squeezed into the little cabin that already he was beginning to go numb. To move his arms and legs was out of the question. Slowly he struggled out again, crushed with disappointment. A friendly pat from Morrey showed that he knew what his friend was feeling.

It was Tony's turn next. Chris forced himself to watch the mechanic's efforts to qualify for the job. But he, too, was eliminated. Then a worried Director called on Serge. If the Russian failed, Sir George's plans would be seriously upset. Serge was slimmer than the rest, but was he slim enough?

"Close the hatch," Benson called out hoarsely as Serge stood inside.

For an endless second nothing happened. Then the hatch slid to. It would be Serge who would make the journey into the depths of the earth!

8

Serge accepted the congratulations of his friends calmly. Though he was tremendously excited at the prospects of the deep plunge, he knew just how Chris, Morrey and Tony must be feeling. More than anything he hoped that his selection wouldn't alienate him from his friends. Rather than have that happen, Serge thought, he'd withdraw from the project. But the congratulations were genuine enough, and the others soon convinced him that there were no hard feelings. They would help him all they could.

"That's a relief," Sir George Benson admitted back at their hotel headquarters. "I must confess that it's been worrying me a great deal as to how I'd make a choice. If you'd all been exactly the same size, I don't know what I'd have done."

"We'd have had to cut a pack of cards," Tony suggested brightly:

"Maybe," the Director agreed, smiling. "Now all I want is for Serge not to overeat between now and the plunge. It would be too bad if we found he'd put on too much weight to squeeze into the cabin."

"Leave that to me," Whiskers said. "It's nothing but dry toast for that young man from now on!"

"Well, it needn't be quite that bad," Sir George said before Serge could protest, "just give him plenty of exercise.

In fact exercise would do all of you a lot of good. You, too, Whiskers."

"Me?" screeched the ex-Wing Commander. "You're joking."

"You must set us an example," the four young men exclaimed, laughing. "We'll exercise when you do."

"Why did I take this job on?" groaned Whiskers. "You never told me I was to torture myself to death."

"Come now, it isn't as bad as that. You used to be a splendid figure of a man in your young days." Benson winked at the others.

"You think so?" a slightly mollified Whiskers said. "Oh, well, tell everyone I died for my country."

"Where shall we exercise?" Serge asked.

"I expect you can get the use of the gym at the Technical College. We've about taken over the place," the Director told them. "Work out a program starting tomorrow, will you, Whiskers?"

The reluctant Whiskers agreed, but wanted to know if there was any other training that Serge would need. Going down a hole wasn't like shooting half-way across the solar system, was it?

"Of course he's got other training to do," exploded Benson, "and I want Tony, Chris and Morrey to do it as well—just as if they were all going down the mohole, in fact. So you can do your worst with them mornings only."

"That will be more than enough," Whiskers murmured, and he sank into the deepest gloom at the thought of having to keep pace with these fit young men.

"I wonder what the training will be like," mused Serge.

Since Whiskers had to visit the gym to arrange the exercise program, the four friends spent the afternoon wandering around the zoo. Sir George had had to make one of his frequent dashes to London, so they were left to their own devices.

"Well, you—or rather, we—won't have to endure the centrifuge," Tony declared. "When you're dropped down the hole you'll be in a free fall, and we're all quite used to that."

"I expect we'll have to spend a time in a high-temperature chamber," Chris hazarded, "but that will be more to test the suit than the wearer. Serge isn't likely to meet temperatures as hot as those encountered in the Mercury trip."

"True. My guess is he'll have to practise maneuvering the capsule with his hands fixed to his sides," Morrey said. "That will be the most novel condition he'll meet."

For the next few minutes the quartet gazed in admiration at the lovely pair of giraffes that was the pride of the zoo. A few months before George and Grace had presented the world with a baby giraffe, an event sufficiently rare to merit wide publicity. Unfortunately, the little animal hadn't survived for long. Tony vowed he could see a great sadness on the faces of the bereaved parents.

"What's worrying me most," admitted Serge as they closed the doors of the heated giraffe house behind them, "is the problem of illumination. If the cavern is very large it will want a powerful beam of light to help explorations. This will mean a fair amount of battery power."

"You can't get power by cable or by solar cells," Tony pointed out somewhat unnecessarily.

"That's a point we'll take up with Uncle George," Chris agreed. "He'll be back late tonight."

The subterranauts spent the next two hours watching the endless pacing of the tigers, the massive indifference of the lions, the antics of the monkeys, and the grace and speed of the seals. As they approached one of the aviaries the chattering and screeching of the multi-hued birds was quite deafening—a sharp contrast to the brooding silence of the reptile house. Here snakes and lizards stared stonily through the glass at their visitors, or slid sinuously across the sanded floors of their enclosures.

"I always thought crocodiles were much larger than that," Tony observed as they stood in front of the alligator house.

"Some of them are," Serge pointed out. "There is one in the Moscow zoo over eighteen feet long."

"We've got one in the New York zoo over twenty feet long," Morrey boasted, and he looked hurt when Chris laughed uproariously.

"Come on," the leader said, "it's time we were getting back to the hotel. Let's see what old Whiskers has cooked up for us."

The ex-Wing Commander met his charges in the entrance lobby.

"Everything's laid on for tomorrow morning," he told them. "The College certainly has a variety of equipment. You'll love it."

"Er—will you, old bean?" Tony grinned cheekily.

"Oh, yes, indeed," Whiskers sighed. But Chris fancied he was keeping something back. That sigh hadn't sounded very convincing. What was the old fox going to do to get out of the strenuous exercise he'd planned for the quartet? Chris resolved silently to watch his every move.

It was nearly ten o'clock that night before Sir George Benson returned. Serge had been playing Chris, Morrey and Tony simultaneously at chess and had won every game, so it was a relief when the Director's arrival terminated the one-sided match.

"There are some sandwiches laid out for you," Whiskers told the Director. "We'll come and watch you eat."

"Can't I have a snack in peace?" Sir George sighed. "Oh, well, you might as well come and tell me what you've been doing."

Chris and company hadn't much to tell, but Whiskers reported on his visit to the Technical College and his admiration for the gym. By the time Benson had finished his meal his companions were all waiting to hear from him.

"I've been to see some very interesting tests," the scientist explained, "for a special visor which will fit on the helmet. It's to let you see in the dark."

"That's a coincidence," said Serge. "I've been wondering about that problem all evening."

"I thought you'd been playing chess."

"Oh, it doesn't take all my mind to beat those three," the Russian smiled. "I can still use nine-tenths of it for other problems."

"Modest, that's what he is," growled Morrey.

"Let me tell you about the new visor," said Sir George. "As you know, our eyes are constructed to receive radiation of certain wavelengths. We call this the light band, and it's only a very small portion of the radiation spectrum. Above the violet end of the light band are ultra-violet radiation, x-rays, gamma rays, and so forth—each of increasing frequency. Likewise there is a vast range of radiation below the light band, such as infra-red, ultra-high-frequency radio, VHF, and all the other radio wavelengths right down to sound waves.

"It's the infra-red that we are going to use. As a body becomes hotter it emits radiation of ever-increasing frequency. If it becomes hot enough for the radiation to enter the light band we see it as the body beginning to glow. Below the light band we can still feel the radiation as heat. Now, because of the temperature in the cavern there's a lot of infra-red radiation. This new visor translates the infra-red into a wavelength the eyes can recognize—light.

"This sort of thing isn't new. It was used a lot in the bad old days for military purposes. The visor we've just developed will make it seem almost daylight down in the underworld," Sir George concluded.

"Whew! That's a relief," Serge admitted. "I was wondering how I'd find my way about. A miner's lamp on my helmet didn't seem adequate."

"You needn't worry about that any more," the Director assured him. "You'll have plenty of opportunity to test the device before the descent is made. I'm having a few delivered to the R.O. works in a couple of days' time."

"Come on! Rise and shine! Get up, my lucky lads!"

That was the message that Whiskers roared into the bedrooms of the four subterranauts the next morning.

"A lovely day," he went on, throwing the curtains back. "Well—perhaps it is a wee bit damp," he conceded, seeing the pouring rain outside. "Half an hour in the gym will give you a wonderful appetite for breakfast."

With loud protests Chris and his friends were pried out of their beds, forced to have a quick wash and shave, then bundled along in the Red Peril to the Technical College gym. A caretaker who had just started work for the day let them in.

"No need to change for this short spell. Just get into gym shoes," Whiskers called, and in a few moments all five were doing vigorous exercises.

"Er—just carry on for a bit. I want a word with the caretaker," panted Whiskers. With suspicion on their faces the quartet watched him go.

"Sorry I was kept so long," Whiskers said breezily some time later. "Just couldn't make the fellow understand. I think that will do till after breakfast. Come on. Hurry along. I'm starving."

With relief the four young men halted their exercises, changed their shoes and draped themselves in and around the Red Peril. At the hotel their appetites certainly seemed to have benefited, for they did more than justice to their breakfasts.

"Watch it!" Morrey called to Serge slyly, and the Russian grinned back good-naturedly.

By the time the meal was over it had stopped raining.

"No rides now, you'll have to walk," Whiskers called cheerily, and before they could protest he'd roared away, leaving behind a cloud of blue smoke.

At the gym they changed into shorts and Chris could see that Whiskers was preparing some apparatus.

"Give us a hand," he called, and the quartet helped him haul four rowing machines out of a storage room.

"Just enough to go around," Whiskers observed. "Get moving."

"Isn't there another for you?" inquired Chris.

"Doesn't look like it," the ex-officer replied with what he hoped was a resigned expression. "Anyway, it's more important that you four use the apparatus available."

Only Morrey had had any experience with rowing on dry land, but the others soon mastered the technique, and it wasn't long before four moist faces showed how strenuous the exercise was.

"Have a breather," Whiskers suggested complacently, and the young men were glad to have a rest.

"Mustn't let you cool off too much," Whiskers said after what seemed but a very short interval. "Are you any good at cycling?"

They dragged out of the storage room the cycling machines—four of them.

"Too bad there isn't one for you," Chris said a bit suspiciously.

"Yes, isn't it?" agreed Whiskers. "Now let's see how fast you can go!"

A dial on each machine indicated the speed at which it was supposed to be traveling, though, of course, it never moved an inch. Tony won by a fraction, though Morrey kept up his pace longest. This time they were really sweating.

"We'll all be able to get into the capsule at this rate," panted Chris, "except, of course, this lazy hulk."

"Come, now," chided Whiskers, "I should be only too glad to show you all up if there were more machines. Now, what about these chest expanders?"

"Do we want to expand our chests?" Tony asked plaintively. "I thought the idea was to keep us—I mean Serge—down to size."

"It won't do you any harm," their tormentor replied briskly. "Come on, now. Try a few stretches."

He produced four strong expanders and goaded the quartet into further efforts. Only when his charges were completely exhausted did the relentless Whiskers call a halt.

"Whose idea was it to bring in this sadist?" moaned Morrey as they relaxed. "I'm sure I've lost many pounds."

The others seemed too tired to reply, though there was a strange gleam in Chris's eye. After a shower and a brisk toweling, the subterranauts felt better, and by the time they had changed back into their outdoor clothes they had quite recovered.

"You fellows go on back to the hotel," Chris said. "I want to powder my nose."

"Shall I wait for you?" Whiskers asked.

"No, no! I'll not be a minute," Chris assured him hastily. "I'll catch up with you before you get there."

As soon as his friends were gone, Chris sought out the caretaker and asked the man some questions.

"It was Mr. Greatrex who told me to lock the others away," the caretaker admitted.

Under Chris's firm but gentle pressure he led the way to another storage room where the apparatus was stored. Prominent among the equipment were cycling and rowing machines and chest expanders!

Chris let out an expression beneath his breath. Then, with the caretaker's help, he did a little moving job.

"You've been a long time," Whiskers declared, for he and the others had been back at the Station Hotel a good five minutes before Chris arrived.

"Sorry," apologized Chris. "I was held up by a locked door."

At that moment Sir George joined them and inquired how their first morning exercises had gone. Whiskers assured him that they had all had a very strenuous time, and that if they followed his lead he was sure he could keep the four young men in good condition. Sir George didn't notice the thunderous looks of Chris and the other three. Instead he told them that they were to go into a hot chamber that afternoon.

By the time they reached the vast R.O. works it was nearly three o'clock. Their friend the commissionaire beamed a regal welcome.

"All is ready, gentlemen," he said graciously. "The Chairman will be joining you in a few moments."

But it was less than thirty seconds later that the industrialist joined the little group, and ten seconds after that they were trailing behind him toward the special department!

9

"We have a suit for each of you," Mr. Steven told the four friends. "Sir George insists that you all get the same training. Unfortunately the hot chamber will only hold two at a time, so you'll have to split up into pairs to test out the suits."

"That will be reduced to one at a time when the dummy capsule is used," the Chairman interposed.

"Quite right, sir," Mr. Stevens agreed, "but I don't expect it will be ready for several days yet."

The industrialist's eyes took on their well-known steely look, and his jaw became a little more prominent.

"Mr. Stevens," he said grittily, "the time fixed for the completion of the dummy capsule is 3:20 P.M. tomorrow. You may arrange for these young men to test it at 3:21 P.M."

"Of course, sir," the project manager agreed hastily.

Benson concealed a smile. He knew this energetic man controlled his employees with a rod of iron. He had no patience with failures and the inability to maintain a set time schedule for a job would call forth his terrible wrath. The dummy capsule, Sir George had no doubt, would be ready on time.

Four suits were laid out for Chris and his companions, and with assistance from some of Mr. Stevens's men, they put them on.

"Now follow me," the project manager said, and even the Chairman fell in behind. They made their way through a sliding door into another workshop that they hadn't visited before. In the center was a metal cube which could only be the hot chamber. Cables of all sizes sprouted from it, many of them going to instruments set out on a bench along one wall. The thickest cables carried the power supply, for the chamber was really a large electric oven.

"It's at 400° C.," Mr. Stevens told them all. "We can get up to over six hundred."

H'm, thought Chris. Let's hope the suits work. It wouldn't take long to cook at that temperature!

"Inside is a red alarm handle," Mr. Stevens explained. "If you have the slightest discomfort you are to press it at once. In addition we have an observation panel through which we can keep an eye on you."

"Chris and Tony, I want you to go in first," the Director said. "If all is well you will stay in for ten minutes. Then it will be the turn of Morrey and Serge. Ready?"

Some technicians came to secure the helmets of the first pair. When they were in place, Chris tried out the radio, talking both to Sir George and to his companion, Tony. At last all was completed, and the two young men turned to face the hot chamber.

"Step inside as quickly as you can," the voice of Mr. Stevens said over the radio, "we want to keep the heat loss to a minimum."

Chris raised a hand in acknowledgment, and then a door into the chamber slid to one side. Some of the watchers, though twenty or thirty feet away, felt the heat from that dark interior. Chris went forward and stepped through the two-foot-wide opening. A second later Tony followed. And then the door slid to.

As it closed a light came on. It was shielded behind a thick glass cover, and the two could see around them fairly well. Along one wall was a quartz glass observation panel, and men were peering through. At the far end was the alarm handle that Mr. Stevens mentioned, but of course they would never use it.

Because of the thick walls of the hot chamber, radio communication with the outside world wasn't very good, although the two young men within could hear each other perfectly.

"All right, Tony?" Chris asked.

"Fine," the mechanic called back, "but I know now how the turkey feels when the oven door closes on it on Christmas morning."

The ten minutes went by slowly, and neither Tony or Chris felt any discomfort. It seemed that the suits were a hundred per cent effective, and this was confirmed by Morrey and Serge. Sir George expressed himself well satisfied with the trial and arranged another for the next afternoon.

"I hope by then to have the special visors which will permit you to see in the dark," he told the quartet.

"What shall we do this evening?" Whiskers asked after he and his four charges had eaten.

"There's a good show on in Birmingham," Morrey said brightly. "Top variety at the Hippodrome."

"What about the film at the local cinema?" asked Tony. "It's about vampires."

"There's ballet at Wolverhampton," Serge pointed out. "It wouldn't take us long to get there."

"I'm just wondering if we could pick up tickets for the Memorial Theatre at Stratford," mused Chris. "We could get there in a little over an hour."

"Here we go," sighed Whiskers. "Can't make up your minds. Let's draw for it."

He produced a pack of cards and they all cut into it. Morrey won, so off to Birmingham they went. The variety show was good and they laughed a great deal—but not so much as we shall laugh tomorrow, Chris thought to himself.

"Rise and shine!" Whiskers called in his maddening way. With moans and grumbles the four young men allowed themselves to be dragged out of bed. A cold shower, ordered by the cruel ex-officer, livened them up, and after a carefully chosen breakfast, they prepared to walk to the Technical College.

"I'll catch up with you," Greatrex promised, as he went out to start up the Red Peril.

"Let's run to the gym," Chris suggested suddenly to his companions.

"What's biting you?" Morrey asked petulantly. "We shall get enough exercise during the rest of the morning."

"Come on, lazy bones," Chris urged, grinning. He didn't want Whiskers to reach the gym first. This morning they would prepare the apparatus together. Reluctantly the other three trotted in the wake of their leader.

"Can we try the 'nowhere cycles' first?" Chris asked as they assembled in the gym.

"Why not?" agreed Whiskers. "Pity I can't join you. Get out the four machines."

Tony, Morrey and Serge followed Chris. Why on earth had he suggested the cycling machines first? What was he up to? Before they could ask him they reached the storeroom door. With a flourish Chris threw it open. And there were *five* cycling machines, *five* rowing machines and *five* chest expanders!

"Yippee!" yelled Morrey. "Whiskers, we've good news for you. You can join us after all."

To the utter amazement of the discomfited ex-Wing Commander, the quartet gleefully brought out the five pieces of apparatus.

"Where's that caretaker?" Whiskers growled. "I'll murder him!"

"Calm down, fellow," Chris cooed soothingly, "you wouldn't want Uncle George to know you'd tried to pull a fast one on us, would you?"

Muttering dire threats from beneath his vast mustache, the unhappy Whiskers climbed into the saddle of the fifth machine to the cheers and general encouragement of the other four.

Lunchtime came, and four sweating, but cheerful, young men helped their exhausted friend into the shower. For the first time that they could remember, the famous mustache was drooping—with perspiration. "I shall be dead before morning," Whiskers declared with conviction. "Then you'll have that on your consciences for the rest of your lives."

"Nonsense," Chris laughed as he passed a big towel. "You could do with losing that spare tire around your waist."

"Remember I'm not the one who's going down the mohole," Whiskers protested, but by the time they had all changed into outdoor clothes, he was in somewhat better humor.

"Didn't put up a bad show for one twice your age, did I?" he asked complacently.

"You did fine," Morrey assured him. "Tomorrow we'll really get to work on you."

"Hey!" cried Whiskers in alarm, "am I training you—or are you training me?"

How could the four young men know that the wily Greatrex was congratulating himself on his plan to keep his four charges training vigorously but happily?

Sir George Benson, whom they hadn't seen since the previous night, was waiting for the subterranauts at the R.O. works.

"The visors have come," he told them. "I want you to test them out this afternoon."

Four pieces of equipment lay beside their helmets. They were made mainly of dark glass and stainless steel. Measuring about six inches square by about an inch thick, they were made to clip on to the helmets in front of the ordinary eyepieces. Experimentally Tony looked through one at the sunshine pouring in from a window. He couldn't see a thing.

"No, it only works with infra-red," Sir George explained. "Will you please get your suits on? I'd like you to stay in a little longer this afternoon."

This time it was the turn of Serge and Morrey to enter the hot chamber first.

"Clip on the infra-red visor when the light goes out," ordered the Director, as the two young men strode forward to the open door.

"Very good, sir," Serge acknowledged over his radio.

They entered the oven of quivering heat. The door was closed behind them, and again only their suits were between them and instant death. A few seconds later the light went out, and only a dim gleam came in through the observation window. It was a simple matter to clip the infra-red visors in front of their helmets.

The effect was remarkable. It was as if a light had come on. But the illumination didn't come from one point. The whole chamber was glowing—even they themselves shone. Everything around them was bathed in soft light. They could see each other and every detail of their surroundings perfectly. When they reported over their radios, the two young men were full of enthusiasm. To Serge it was a great relief to know that he wouldn't be in suffocating darkness at the bottom of the mohole. Instead, with the aid of this wonderful device, he'd be able to see around him almost as well as he could in daylight.

Chris and Tony, of course, were anxious to experience this marvel for themselves. Tony could still hardly believe that the visor was capable of converting the infra-red radiation of the hot chamber into visible light. While they were waiting for Morrey and Serge to complete their spell inside, Chris tried to explain the principle of the visor. But Tony preferred to accept it without question rather than become involved in a lecture on theoretical physics.

"It certainly seems to have solved one of our greatest problems," Sir George Benson admitted when they were all together in the hotel that evening. "To have carried your own illumination, Serge, would have been almost impossible. In any case the duration and power would have been strictly limited. With the visor you will be able to move freely when you leave the capsule."

"When will the flight, or rather 'drop,' be made?" asked Chris. "What other training have you in mind?

"I think the descent can be made much sooner than expected—in a week's time," said Sir George. "As for other training, we're going to drop Serge and his capsule down a pit shaft. The idea will be for him to get used to the controls of his rocket motor in free fall. Of course we'll let him have a go at a static firing first—just to make sure he can operate all the bits and pieces in the restricted space of the capsule. And there, I'm sorry to say, his training will be done alone. Of course, you'll all still continue exercising with Whiskers here, but we haven't any special capsules into which we could fit you chaps."

"Don't you think they've had enough exercise?" groaned Whiskers. "They're all very fit, really."

"I'm sure they are," the Director smiled, "but Serge must be careful that he doesn't add an ounce of weight."

The ex-Wing Commander mumbled something into his mustache, as the four young men said what a good idea they thought that was.

"Of course, if you're finding their training too strenuous for you, I could get you released to return home," the scientist said tentatively.

"Gracious, no," Whiskers said hastily, "I was only thinking that we mustn't be too hard on them."

Two days later Serge had his static firing. It took place in a large enclosed yard in a remote part of the R.O. works. The capsule, with its rocket motor attached, was bolted to a large steel frame which held it some ten feet above the ground. Around the foot of the frame was a concrete wall six feet high. This was to confine the flame of the rocket motor, and to protect onlookers from its glare and heat.

Serge climbed up a step ladder, wearing his protective suit. With a wave to his companions standing fifty yards away, he stepped into his capsule and slid the door to behind him.

"Ready?" asked Sir George over the radio.

"Ready," the voice of Serge came back over the loud speaker.

"Then let her go," Benson ordered.

There was a gush of flame and black smoke from the base of the capsule as Serge ignited his motor. The watchers could see the capsule quivering as it tried to tear itself loose from the steel frame. But the moorings held firm and the flame died away as Sir George ordered the shut-down. Several times Serge started up his motor, cuttiing it down to half or quarter throttle on the instructions of the Director. After ten minutes the test was over and Serge was told to leave the capsule. Normally he would have had to wait until the frame cooled down, but the special suit and the thick soles of his shoes protected him from injury as he stepped out of the sliding door.

When he had removed his helmet, he assured Sir George that he'd experienced no difficulty in operating the motor controls, and the Director expressed his satisfaction with the trial.

"The day after tomorrow we'll do the free fall drop. And that will be all until the real thing," he said.

"Good test for the methane, too," Mr. Stevens observed, for the rocket had used the same fuel as it would underground.

"How did it feel?" Tony asked Serge when they were back in the hotel.

"A bit cramped," the Russian replied, "but it wasn't too difficult."

"Er—is it really necessary to continue the physical exercises?" Whiskers asked, hopefully.

"Of course it is," the scientist answered. "You know—I get the distinct impression that you find them too strenuous."

"Not at all," the ex-officer assured his chief indignantly. "I was just thinking of the welfare of these four."

"We'll carry on right to the end," Benson ordered. Poor Whiskers gallantly tried to force a smile.

10

It was the day of the final test—the free fall drop. The subterranauts, Sir George Benson, Whiskers and Mr. Stevens had traveled by car to a deep mine in Derbyshire. The capsule, together with a flock of technicians, had made the journey the night before. When they arrived at the pithead Chris and his companions could see that a considerable amount of preparation had been necessary. The mine itself was no longer in use and the shaft and winding gear had been prepared specially for this test.

In place of the usual pit cage, Serge's capsule hung over the gaping hole in the earth. It was very much larger, of course, than the mohole, so special fins had been temporarily fitted to the capsule. This had been done to ensure that the vehicle would fall vertically and not roll over to strike the side of the shaft.

The mine, they were told, was a mile and a half deep—the deepest available for the purpose in Britain. Even so, it would take only twenty-two seconds for the capsule to fall like a stone to the bottom. Serge must, therefore, set off his motors as soon as he'd been released. The slightest delay would mean that the capsule and its pilot would be smashed at the foot of the shaft.

Though they could not take part in the test, Chris, Tony and Morrey felt the tension building up within them. To all outward appearances the Russian was quite calm, though inwardly he admitted to a few quakes. When he tried to analyse this feeling, Serge found that it was mainly due to being alone. Personal danger he'd faced many times. Indeed, he'd been in any number of seemingly hopeless situations. But all these had been in company with his three friends. Now he must face the danger of this free fall, and the subsequent perils of the mohole, alone.

Sensing the Russian's disquiet, Whiskers rose to the occasion.

"You know," he said, "this drop will be, in many ways, like a parachute drop. You'll be on your own and you don't have to wait too long before you pull the rip cord."

"How many drops have you made?" Tony asked.

"About a score—two of them involuntary," Whiskers told them. "The first time the old 'Spit' was shot up I was at just under two thousand feet. It was then that I got my feet wet landing in the sea. Next time I was at about ten thousand feet and managed to fall into a tree. It took me nearly an hour to get free and put foot on the old terra firma. Anyway, you won't have enemy bullets whistling around you on the way down, Serge."

The ex-officer chatted on about war-time experiences until Mr. Stevens came to say that all was ready. Amid cries of good luck from his friends, Serge went forward to get his suit on. The next time they saw him he was walking in the middle of a little knot of technicians toward the pithead. There Sir George was waiting with final instructions.

"Wait five seconds before you light up," he told Serge. "The motor will take two seconds to develop full thrust. Throttle back at once until you're falling again. We've fixed the altimeter to give you distance from the pit bottom. Don't go nearer than seven hundred and fifty feet. Then open up and climb again. If you want to you can throttle back a second time. As in the mohole, we'll cut your motor back at the right point when you're coming to the top."

With a wave to the people around the pithead, Serge wriggled into the capsule and slid the hatch closed behind him. Sir George and Mr. Stevens made a rapid check that all was ready. Then Sir George spoke to Serge over the radio.

"We're going to release you in ten seconds from—now!" he said.

The watchers listened tensely as the count-down proceeded. At zero the signal was given and the hook holding the capsule was released.

Inside the confined space Serge, too, was listening to the seconds being called out. His left hand was on the firing switch and his right on the throttle control. In front of his face was the altimeter. The needle was stationary at seven thousand five hundred—the distance in feet from the pit bottom. To remind him—though he was hardly likely to forget—that he mustn't approach the bottom nearer than seven hundred and fifty feet, there was a red indicator at this point on the dial. He waited calmly for the drop to start.

"Zero."

Involuntarily Serge tightened his grip on the two vital controls as he felt the floor of his tiny cabin give way beneath his feet. For a second he seemed to be suspended in mid-air and then he could just feel the floor again. But there was no time to think about his sensations. Five seconds wasn't very long to wait, but by that time he'd be falling at a hundred miles an hour. Grimly Serge waited for a few brief moments to pass.

That was it! He pressed the firing switch with his left hand and then waited for the kick of the motor. Meanwhile the needle of the altimeter was falling at an increasing speed. Every second that passed saw the rate of fall increase by twenty miles an hour. The two seconds that Sir George had said must elapse before the motor started up seemed the longest the Russian had ever known. Then the floor of the cabin suddenly came up and forced him to bend his knees.

With an unconscious gasp of relief, Serge watched the movement of the needle slow down to a stop. Now he must throttle back or the capsule would shoot up the shaft. Already the altimeter had begun to creep back when he gave the control in his right hand a slight twist. Immediately the thrust against his feet slackened. Continuing the movement, Serge shut the motor down still more and he felt the capsule begin to fall once again.

Serge kept his eyes fixed to the slowly moving needle. From it he could tell that the capsule was sinking toward the shaft floor. After a few seconds, while the instruments still showed four thousand feet, he twisted the control the other way—clockwise. Again there was the upward pressure of the floor as in an ascending lift. Watching the needle carefully, the Russian gradually opened the throttle until the capsule was again rising.

It gave Serge a wonderful feeling of power to be able to control the rise or fall of the vehicle. A clockwise twist and the capsule would climb toward the surface; counter-clockwise and it would sink down into the earth. The greater the twist the more rapid the motion. He was tempted to try to regulate the thrust of the motor sufficiently just to support the capsule. However, he'd been warned it would be dangerous for the vehicle to stand still. Only if it was in movement—up or down—could the fins stabilize it and keep it from veering into the side of the shaft.

Gently Serge eased his craft down. He was going to take it to the lower limit. As he approached the seventy-five mark he was tempted to take it even lower. Still, orders were orders, and Serge dutifully climbed back toward the surface. He slowed down the motion as much as he dared and watched the altimeter creep back slowly to surface level. Just before he reached the top the motor cut out without any action by him. For a moment his heart leaped, but the next second he was reassured. The capsule had been seized ready for hooking. He was at rest.

A metallic sound came from above his head as the hook connected with the ring bolt on the nose of the craft. Then he felt the capsule being winched up the last few feet to the surface.

"Open up," the voice of Sir George commanded over the helmet radio.

Without waiting for a second order, Serge pressed the knob and felt the door open behind him. Following a now well-remembered procedure, he extricated himself and felt the grip of Chris and Morrey on his arms. In spite of the pit ventilating system, acrid smoke was coming up from below. With relief he let his two companions guide him through the cloud into the clear air.

"How did it go?" Tony asked eagerly as Serge's helmet was removed.

"Not too badly," Serge answered, adopting a phrase from his English friends.

When he'd removed his suit the Russian gave a full account of his experience to his Chief, and Sir George was satisfied. Serge had proved that he could operate the controls with the necessary degree of precision. Unless the capsule met with conditions in the mohole which were impossible to predict, the descent seemed to present no special difficulties. What Serge would do if and when he left the capsule must be left to his discretion.

It was quite late when the little party reached their hotel. Whiskers had gone to collect the keys from the reception desk when a worried clerk seized him.

"Oh, Mr. Greatrex," she spluttered, "I'm so glad you're back. There's an urgent message from the Technical College for Sir George. Someone has phoned seven times in the last hour to say it was vital for Sir George to go there the moment he returned. Will you tell him?"

"Of course," agreed the puzzled Whiskers. "But who was phoning? Did they say what they wanted?"

"No, they didn't tell me anything except that it was very urgent. I don't know who telephoned. I don't even know whether it was a man or a woman," the girl informed him.

Whiskers hurried away to where his friends were waiting in the lounge. They were still talking eagerly to Serge about his drop, so they didn't notice when the ex-officer approached.

"Sorry to cut in like this," Whiskers interrupted, "but there's a message from the College for you, Benny. Sounds pretty mysterious. You're to go there pronto."

"What's the trouble?" Sir George asked, but Whiskers could only repeat what he had been told.

"It must have been Miss Bevers if she couldn't tell whether the voice was a man's or a woman's," observed Chris. "She's got a deep voice."

"I'd better get along right away," the Director said. "Go on with your meal. I'll have mine later. I'll be back as soon as I can."

With a puzzled frown Sir George hurried away while the rest of the party went to their rooms for a wash. There was no sign of the scientist when they drifted down into the lounge again half an hour later, so Whiskers shepherded them into the dining-room. During dinner they speculated as to the reason for the urgent summons to Sir George, and what was delaying his return.

"If those calls were from Miss Bevers, it must have something to do with the mohole microbes," Serge said thoughtfully. "That's the only aspect of the job in which she's concerned."

"Could be," agreed Morrey, "but we'll just have to wait and see, won't we?"

The meal was over and so were half a dozen games of billiards and still Sir George had not returned.

"Let's go down to the College," suggested Tony, and it was obvious they'd all been thinking along the same lines. They put up their cues and were all marching toward the swinging doors when the scientist returned.

"What's the matter?" demanded Whiskers, for they could all see the strange look on Benson's face.

"Come to my bedroom and I'll tell you," Sir George said shortly, and he strode off toward the lift.

The scientist's bedroom was quite crowded with all of them and Sir George shut the door carefully after the last one, Tony, came in.

"I've had some grave news," he began without any preliminaries. "Miss Bevers has discovered that the bacteria from the cavern are dangerous to human life. Fatal, in fact."

There was a sharp intake of breath as the significance of the scientist's words sank in.

"What's happened?" Serge asked quietly after a long pause.

"Well, you saw for yourselves that the bacteria recovered from the upper atmosphere of the underworld were unlike anything we have seen before. Specimens were sent to the Bacteriological Experimental Station at Porton, where they were thoroughly investigated. Rats and rabbits were injected with them to see their effect on living tissue. Every one of the animals died. That didn't necessarily mean that the bacteria were harmful to man, thought it seemed very likely. Experiments were continuing in an orderly manner to obtain this very vital piece of knowledge. Unfortunately, the information has been obtained much sooner than expected," Sir George said gravely.

His listeners almost guessed what was coming.

"One of the assistants under Miss Bevers," the scientist went on, "had a shoe lace that came untied. While he was carrying a sealed glass flask containing a specimen, he tripped and fell. The fall broke the glass and cut his hand. And, of course, the bacteria entered his blood stream."

"He's dead?" asked Morrey.

"He died within five minutes," the Director told them gravely. "Miss Bevers is distraught about it. The lab has been sealed off. Only the body has been removed."

"Have—have you seen him?" asked the horrified Tony.

"No. The poor chap is in the mortuary of the local hospital. Some of the people from Porton are on the way up. They say the body must not be touched until they arrive."

"Will this affect our project?" Morrey asked.

"I don't know. I must think about it. If these deadly germs are lurking in the cavern the risk may be too great."

"But I'll be well protected," Serge pointed out. "Surely the suit will not only keep the heat out, but everything else.

"Probably," agreed Sir George, "but we mean to find out before we let you down the hole."

The news of the accident in the Technical College lab had shocked everyone in the little party. There were no games that evening, no light-hearted chatter, no tormenting of the long-suffering Whiskers. Instead, each of the four friends was wondering about the future of the mohole project. Chris, Morrey and Tony had grave doubts about sending Serge down among the deadly bacteria of the underworld. But the Russian's only concern was that he might be prevented from venturing into the strange world in the depths of the earth. Sir George had disappeared. He had excused himself on some pretext, but they all knew that he'd gone to meet the men from Porton. Even now they might be examining the unfortunate man who had become the first victim of the bacteria from down below.

It was long after midnight, and Whiskers suggested that they might all turn in. Maybe Sir George would be away half the night and there was no point in just sitting there waiting for him to come back. The only reply the ex-officer received was a couple of cushions flung at him with commendable accuracy.

"All right, then," he growled. "But I'm going to the kitchen to see if I can rustle up some coffee."

The clock showed three o'clock when a car pulled up outside. Tony had dozed off, but the others were waiting with heavy eyes and heavier hearts. Only the night porter was about, and the hotel was very quiet. The swinging doors sounded very loud as the Director pushed his way through. There was weariness in every line of his face, exhaustion in the droop of his body. He literally staggered over to his friends and flung himself into a chair. The effort he made to collect himself was visible to them all.

"You know where I've been? I thought you might. He looked pretty ghastly, poor chap. Still—we've established one thing. The suit will give adequate protection as long as it isn't punctured. So, Serge, it's up to you!" Benson said slowly.

The Russian had gone very pale, but he spoke without hesitation. His words were low and clear.

"You know quite well I'll go, Sir George," he said.

11

No one was surprised at Serge's decision. Each of his friends would have done the same. It was no more, and no less, than Sir George expected. Deep down below them was an unknown region, a world beneath their feet about which they knew nothing. If man was to continue his perpetual quest for knowledge—a quest which had led him from the primordial jungle to the stars—he must not neglect the challenge beneath his feet.

"Very well," Sir George said wearily after Serge had spoken. "But we still have to check up on our sterilization technique. Let's hope these bugs succumb to the radiation bath you'll get as you step out of the capsule."

What the Director meant, of course, was that, like an astronaut returning from another planet, Serge would have to be carefully sterilized to make sure no subterranean microbes escaped. Before removing any of his equipment he would have to step into a special chamber and be subjected to a carefully regulated dose of radiation. This would ensure that any bacteria clinging to his suit would be killed before they could escape into an unsuspecting world. This procedure had always been effective with the microscopic creatures they had brought back from the solar system. But would it be just as effective with the deadly microbes from the underworld?

The four friends wore a sober air as they continued their physical training routine during the next two days. They were beginning to realize more clearly the terrible dangers to which Serge would be exposed. Apart from the mechanical dangers from the capsule and its journey to the unknown depths, there was this additional hazard of lethal bacteria which would surround him. It was a relief, therefore, when Sir George told them that their well-tried sterilization drill would be quite effective. The expedition could again go forward as planned.

"I think we might as well get on with the job as quickly as possible," he said to the quartet, "so the drop will be made at noon tomorrow."

Twelve o'clock next day! Serge felt his heart leap, but he was sure it was from excitement and nothing else. The other three were equally elated, for though they were not personally involved, Serge was so close to them that each felt he had a vital part in the proceedings. The tension which had been building up without their being aware of it was suddenly released and the four young men were laughing, talking and joking as if they were at some hectic party. Whiskers and the Director exchanged an understanding smile.

Though Serge protested the next morning that he'd slept soundly, the ex-Wing Commander had his doubts. The gym session was a very short one, and then they went back to the hotel to wait for a call from Sir George. At eleven o'clock the hotel telephone rang, and the receptionist asked Whiskers to take the call.

"This is it," Tony exclaimed.

He was right. Benson had asked Whiskers to bring the little party along to the borehole. Everything was now ready for Serge's strange mission into the depths of the earth.

No one in the zoo that morning could possibly have guessed that one of those four young men was going to descend into a strange and dangerous world. None of the people gazing with interest into the animal cages could know that the slightly built Russian would soon be encountering creatures infinitely more dangerous than any captive beast. Serge marched resolutely on, talking calmly to his friends just as if his only purpose in life was to enjoy the walk in the sunshine.

In a few minutes they had passed the animals' cages with which they were now so familiar. They came to the wire gate in the deserted part of the grounds, and Whiskers unlocked it to let them through. Soon they caught sight of the mohole building through the trees. Even at that distance they could sense the excitement and activity that the forthcoming descent had caused.

A large van, which they had never seen before, was parked close to the entrance. When Morrey speculated about it, Chris correctly guessed that it had something to do with sterilizing Serge on his return. Actually it was a specially equipped vehicle and Serge was told that on reaching the surface he must walk straight into the van to be irradiated. Word of their approach must have been passed into the blockhouse, for Sir George Benson himself came hurrying out to meet them.

"Quite fit?" he asked Serge with a smile.

"Handed over to you sound in wind and limb. In the pink of condition, in fact," declared Whiskers.

"Anyone would think Serge was a racehorse," Morrey whispered to Tony.

The Director led the way into the building, where Serge was welcomed by encouraging smiles from the crowd of engineers and technicians. One thing the Russian noticed at once was that everyone wore clean overalls or coats in honor of the occasion. Even the R.O. Chairman was there, which perhaps rather dampened the spirits of Mr. Stevens and his crew.

There were no last-minute instructions, for Serge had been briefed as well as possible for this voyage into an unknown realm. Mostly it would be left to the young man's own judgment. He would be on his own in all ways once the capsule was released.

Chris, Tony and Morrey wanted to help Serge get into his suit, but Sir George stopped them. Instead he was assisted by three of Mr. Stevens' men, who had obviously been ordered to handle the suit with extreme care. If Serge ventured into the underworld, the slightest damage to his protective covering could prove disastrous. At last he was ready. Then very gingerly he was conducted to the vehicle.

The capsule was already suspended over the mohole. Part of it, containing the rocket motor and exhaust chamber, was in the borehole, but the opening was on ground level. Serge paused to give a cheerful wave to the three friends he was leaving behind. They could see him smiling through the plain glass of his helmet. Just above that was the visor which he would pull down to enable him to see if he stepped out of his cabin. After hesitating for a brief second he climbed into the capsule and all that the watchers could see was his back.

"Quite comfortable?" Sir George asked over the radio.

"No problems," the voice of Serge answered.

"Right. Shut the door. We'll drop you in a few seconds," the Director said. "Good luck."

The Russian's three friends called their good wishes into the microphone, and then the door slid to and Serge was sealed off. This was like so many practices that he'd had—protective suit, helmet, radio, tight squeeze, controls operated with his arms at his sides—except that this was no practice. This was the real thing. In a few seconds he would be hurtling into the depths of the earth to face a strange environment. Serge took a firm grip on himself and waited for the release.

That was it! The floor of his capsule had fallen from beneath his feet. It was just like dropping down the Derbyshire pit. But this time he wouldn't have to switch on his rocket motor after a few seconds. He would fall an unknown distance. Sir George had said that they had plumbed thirty-five miles. And there had been no sign of the bottom of the cave at that depth. Not until he'd dropped out of the mohole bore and into the cavern below would his altimeter begin to register. But at least he knew that from the bottom of the mohole, where it broke out into the cavern at a depth of twenty miles, there would still be at least another fifteen miles to fall. That should give him ample time to decelerate his vehicle and to place it down gently on the floor below.

Falling at an ever-increasing speed, Serge knew that it would be eighty-one seconds before he entered the cavern. This time might be extended some ten or twenty seconds by the friction of the capsule passing through the methane in the bore. So he had about a minute and a half in free fall before entering the subterranean world. He watched the seconds tick by on the small chronometer at face level. From the corner of his left eye he could see a green light. This would change to red the moment the capsule left the bore. Then the altimeter should tell him something everyone wanted to know—how large the cavern was.

Serge let his hand stray toward the firing control. Better keep his fingers on it. It wouldn't do to fumble when the crucial moment came. Since he was falling at several hundred miles an hour, the delay of even a few seconds might be disastrous. His feet just clear of the floor, he watched the chronometer needle sweep around. A minute had passed. He'd be falling at twelve hundred miles an hour. It wasn't fast compared with some of his interplanetary voyages. But then he'd been passing through the vast emptiness of space. Now he was in a tiny vessel within the earth itself.

Suddenly Serge was aware that his face was moist. Of course it wasn't possible to do anything about it. His arms were confined to his sides as effectively as if he'd been in a strait jacket. Not until he was back on the surface with his friends would he be able to wipe his forehead. And, of course, knowing that he was impotent made the desire to mop his face much stronger. He gritted his teeth and resolved to force the wish out of his mind, but he quickly forgot about it, because of a new situation. The green light had changed to red!

So he'd fallen out of the bottom of the borehole! Now he had entered the vast underground cavern—the world which he'd been sent to explore.

Serge fixed his attention on that most important instrument, the altimeter. For the first time he would get an idea of the extent of this subterranean hollow. Though he wouldn't know how far it stretched, at least he'd learn how deep it was. The altimeter, working on pulses sent out to and reflected from the cavern floor, showed that the bottom of the cave was twenty-one miles below. That meant that when he landed he would be over forty miles from the surface—five miles deeper than the longest line had reached.

Outside the capsule, Serge knew, small fins had unfolded automatically. This was to stabilize the drop through the atmosphere of methane. Without the fins the capsule would not have remained upright during the fall. Only if the long, slim vehicle was in a verticle position would the rocket blast lower it gently to the cavern floor. A small indicator in front of him confirmed that all was well.

By now the capsule and its pilot were falling at a velocity of nearly two thousand miles an hour. If the rocket motor failed to function or it was switched on too late, the result would be catastrophic. Serge had no intention of delaying the deceleration any longer. He would follow the technique he'd acquired in the pit shaft falls and slow up the vessel long before it approached the floor.

With a quick movement of his left hand, Serge threw over the firing switch. Though he knew quite well that it would take two seconds for the motor to ignite, he felt a moment of alarm as nothing happened. Then his knees buckled as the floor thrust itself up against him.

The rocket motor, burning the atmosphere of methane, was working perfectly. Already the vehicle was slowing down. Serge opened the throttle a little wider and the upward pressure of the floor increased. By the time the capsule was within seven miles of the floor the rate of fall had dropped to ninety miles an hour. He decided to continue at this speed until he was only a mile from landing, so he partly closed the throttle once more. Had he not done so the power of the rocket motor would soon have reduced the speed of his fall to zero. Then the capsule would have shot up again toward the cavern ceiling.

Only when his vessel was falling steadily did Serge allow himself to wonder what this underground world would be like. There wasn't room in the tiny cabin to include an observation post. He would have to make a blind landing on instruments, and not until then could he take a peep into this great hollow within the earth. How he wished that Chris, Tony and Morrey were there to share the adventure! If only he could talk to someone! Unfortunately, as Sir George Benson had explained, it was technically impossible to communicate by radio because of the vast bulk of rock and metal above his head. He must remain isolated from his friends on the surface. Perhaps he could step out of his cabin, look around the cavern, take samples and return to the upper world without too much delay.

A quick glance at the altimeter showed Serge that he could now slow down still more. Opening the throttle of the rocket motor just a fraction, he increased its thrust slightly. By keeping a constant watch on the all-important instrument, and by co-ordinating this with the motor control he should be able to set the capsule down gently.

What would the floor of the cavern be like? Serge prayed that it wouldn't be too irregular. Otherwise the capsule might not make a good landing. It might even be awkwardly placed for take-off when the time came to return to the outer world. Sir George had assured him that the cave, now a colossal bubble of gas, would almost certainly have a smooth, flat floor. Serge had great faith in the scientist, but he'd be happier when he had safely landed.

After Serge had closed the capsule door behind him, his friends stood a few yards away watching while Mr. Bickel and his team prepared to release the hook. The capsule hung poised over the mohole, only the ring in its nose and the steel hook keeping it from plunging into the fearsome depths below. Sir George Benson was calmly checking the last details, and Whiskers was hopping about, his mustache bristling fiercely. There was a nod from Sir George and Mr. Bickel pulled a lever. The next second the capsule, with Serge inside it, had disappeared. It was on its way down the borehole to the unknown world below.

Chris, Tony and Morrey could not help the concern they felt for their companion. Although they knew that, technically, nothing was being left to chance, yet the subterranean environment was so strange that many things could go wrong. If only they'd been able to accompany Serge! When they were all together they could cope with any emergency. Now Serge was plunging into the depths below while his three friends remained behind on the surface helpless to come to his aid.

Involuntarily the little knot of people watching moved forward to gaze down the mohole, but Sir George and Mr. Bickel warned them back. There was a peculiar whistling noise coming up from the shaft. This was caused by the methane gas being forced through the many channels down its sides by the falling capsule. Gradually the whistle was becoming fainter as the vessel drew farther away from the surface. It had almost disappeared by the time Mr. Bickel and his men had swung a piece of apparatus over the gaping hole.

"What's that for?" Tony whispered to Morrey.

"That's the Doppler machine," the American answered. "It measures the speed and distance of the capsule."

"You mean it can tell how fast Serge is falling and how deep he is?"

"Precisely, my young friend," Morrey grinned back, "but it can only operate while the capsule is in the borehole. The pulses are too scattered to get a reading from the cavern."

"Will it tell us when Serge has touched bottom?" asked Tony.

"No. They'll soon be replacing it with the infra-red projector. That's the gadget that will guide the capsule back to the shaft when Serge is ready to return," Morrey explained.

Tony was thoughtful for a few moments, evidently turning over a problem in his mind.

"But how can the capsule pick out this beam?" he asked at last. "I thought all the cavern will be fitted with infra-red radiation. Isn't that how Serge will see?"

"Quite right, but you see this beam is on a special wavelength, and the sensor on the capsule is fixed to pick this out from all the others," Morrey told him.

"He's out of the borehole," someone called.

Sir George, Mr. Bickel and Mr. Stevens looked at the dials on the Doppler machine.

"Yes, we've lost him," Benson agreed, "he's on his own now."

12

"How long is Serge likely to stay down?" Tony asked Sir George Benson.

"Well, he's got enough oxygen to last a week." the Director replied, "but I don't suppose he'll want to remain below that long. We must expect him when we see him. He can't tell us when he's ready to return, but I'll be surprised if it's as long as one day. As you know, he can drink by sucking, at the water tube in his helmet, but he can't eat."

"We can only hang about and wait," observed Chris. "Unless Morrey and Tony would like to wander around the zoo?"

"No thanks," the two young men replied in unison.

"Serge might pop up while we're away," Morrey explained.

"Suit yourselves," smiled the Director. "There is nothing—absolutely nothing—that any of us can do but wait."

While Sir George was chatting to Mr. Stevens and Mr. Bickel, Chris and his friends wandered away from the blockhouse. Needless to say they didn't go far. Every few seconds they would turn and look back to see if there was any sign of activity around the mohole.

"Don't get jumpy," urged Whiskers, who was with them. "I understand a siren will go off the moment the capsule re-enters the shaft. That's to give the surface crew time to move the infra-red projector and to prepare the grappling hook. It will also give us time to get back to the blockhouse before the capsule bobs up."

"How far off could we hear the siren?" Tony asked.

"A couple of hundred yards or so," Whiskers told him, "so you needn't keep your eyes glued on the blockhouse."

"Let's try and rustle up some coffee," suggested Morrey, so they trooped off to the small canteen which served the borehole crew.

Even Whiskers was silent as they sipped the hot coffee. The thoughts of each of them were on Serge, for he must now have reached bottom and had perhaps left his ship. "Unless he's fallen right through the Earth and bobbed up the other side," Tony hazarded.

A groan from each of the others was the only reply.

"He's been down an hour now," Whiskers said unnecessarily. "Bet he's having a jolly interesting time."

"All the same, I wish he could radio back to us," Chris replied. "Seems ghastly for him to be cut off completely."

"Er—shall we go back to the shaft?" Morrey ventured.

"No need," Whiskers reminded them. "We shall hear the signal when anything's happening."

When the same suggestion was made again half an hour later, Whiskers didn't object. If they were at the top of the shaft they all felt that, somehow, they would be nearer to their absent friend. Sir George and his colleagues were trying to look busy, but it was plain that they, too, were waiting—just waiting.

It was just over two hours since Serge had been dropped into the depths of the earth. What was happening in that strange underworld? Was he all right? Had the capsule made a safe landing?

These and a thousand other questions were worrying the group of men in the blockhouse. All eyes were on the head of the borehole. Somewhere, an unknown distance below, a young man was facing a novel and terrifying environment that no human had met before. Not until that siren went off would those in charge of the operation know that Serge was safe.

"No point in all of us hanging around here all day," Sir George said heavily. "Serge might be down there till this time tomorrow. Suppose you four go and work off some steam in the gym. I'll phone you the minute there's some news."

"But we want to be here when Serge lands—or rather when he comes out," protested Tony.

"It will take two or three minutes after he enters the shaft. I'm sure Whiskers can get you back here in less than that."

"Ninety seconds flat," declared the ex-officer confidently.

"All right," Chris agreed reluctantly. Yet he had to admit that hanging about, waiting for an event that might not occur for many hours, made little sense. So Whiskers piled the trio into the Red Peril and took them to the gym—much to the Director's relief.

"Can we hear the phone from here?" Chris asked the caretaker.

"Yes, if you leave this door open," the man answered.

"We'll try it out. "I'll get Exchange to give us a ring," Chris announced.

He spoke to the operator while the others went into the gym. Then, replacing the receiver, Chris left the caretaker's office and followed his friends. About fifteen seconds later the bell rang and they could hear it quite clearly. Morrey raced to lift the receiver. It was almost certainly the operator's call—but it just might be the blockhouse!

It was the operator all right. Reassured, the three young men, led by Whiskers, plodded through a sequence of exercises. Every few moments, despite the bloodcurdling threats of the ex-Wing Commander, the three would pause and listen for the ringing of the telephone.

But it never sounded. In the end even Whiskers gave up trying to divert his three charges, and the exercises were stopped by common consent.

"What do you think can have happened to him?" asked Tony as they finally gave up all pretense of thinking of other things.

"Great Heavens, Tony. You don't think that just because you aren't with him Serge can't look after himself, do you?" demanded Whiskers boisteriously.

"But it must be pretty awful being down there all alone."

"Now look here," Whiskers said sharply. "If you'd been slim enough to have fitted into the capsule—and you'd been dropped instead of Serge—you wouldn't like your friends to think you couldn't cope, would you?"

"Let's go back to the blockhouse," Chris suggested. "I don't suppose they know anything or they would have called us."

"Good idea," Morrey agreed. "It will be better than performing contortions to the orders of this hairy monster."

An indignant Whiskers almost refused to transport the three back to the borehole, but a few moments later the Red Peril shot off, leaving behind a cloud of blue smoke. Within the ninety seconds that its driver had promised, the scarlet car screeched to a standstill near the blockhouse and spilled forth its passengers.

"No news?" burst from Chris as Sir George came to investigate the clatter.

"No, of course not," the Director smiled confidently. "I told you I expect Serge to stay down any time up to twenty-four hours. Maybe longer. So don't get impatient."

It was all very well for Uncle George to tell them to be patient, Chris thought. Perhaps he couldn't appreciate just how closely their previous adventures had welded them together. Constant danger had made the four young men closer than brothers. Every moment of Serge's absence was torture for them. Though Serge had been below ground only four and a half hours, it seemed like centuries. Sir George had to speak sharply in ordering the trio back to their hotel for some food.

Before Chris and his friends had finished, the Director himself joined them. Not that Sir George was feeling hungry, but he knew that leaving the blockhouse would demonstrate his confidence to the three young men. And, of course, it did just that. It was like a load off their shoulders to see the scientist relaxing and waiting for his food to be served. Whiskers appreciated the gesture, but he silently noted what an effort it was for the Director to eat.

Though they finished first, the trio waited politely for the scientist to finish his meal. They hadn't long to wait, and only Whiskers noticed how relieved Sir George was to terminate his little act.

"We can't all hang around the blockhouse all the time," Sir George began as they moved into the lounge. "It isn't as though you can do anything until Serge gets back. Why not stay here until the siren goes off? You can cut through the zoo and be ready to greet him."

Whiskers added his arguments to those of his old friend, and Chris had to admit the logic of what they said. If he'd been in the underworld instead of Serge he would have wanted to stay as long as possible. Sir George hadn't set a time limit, being content to leave it to the Russian's discretion. Given a free hand, Serge would explore the cavern as much as possible.

When Sir George had gone, Whiskers insisted that they all play billiards. The hotel porter could contact them quickly if a phone call came through. To create an interest in the game, Whiskers announced that the losing pair would have to give a party to Serge and the rest of them as soon as possible after Serge's safe return. By a determined effort the other three managed to concentrate on the game, which decided that Chris and Morrey would be the hosts.

"Still no news," Tony observed as they put away their cues. "He must be staying down the full twenty-four hours."

"Shall we have a walk to the blockhouse?" asked Morrey.

"I don't think I should," Whiskers advised. "You'll be getting in Benny's hair. Much better for you to stay here and get a night's sleep. Then you can go across and wait for him to pop up in the morning."

This the trio agreed to do, though they insisted on waiting for Sir George to come in before they retired. It was nearly midnight before the scientist entered the hotel, and he could only tell them that things were all quiet in the mohole.

Chris spent an unhappy night. Expecting and hoping to be called to the blockhouse, he couldn't sleep. As he lay in the darkness trying to will himself to sleep, the thought of Serge kept forcing itself into his mind. No matter how he tried to reassure himself, Chris was becoming more and more anxious about his friend. If Serge was in trouble, he was beyond human help. Only someone who could squeeze into one of the spare capsules could venture down the mohole. By the time a pilot had been found and trained, Serge's oxygen would be exhausted. Not even when he and his friends had been speeding deep in the solar system had Chris felt so isolated as Serge was now.

It was barely light the next morning when Chris went along to the bathroom for a shower. He found the floor wet, which showed that he wasn't the first to use it. Morrey?

Tony? Had one of them been as sleepless as he? When he'd finished in the bathroom he walked along the corridor and saw Morrey's door slightly ajar.

"Are you awake?" Chris asked, putting his head around the door.

"Awake? I haven't slept a second," Morrey declared. "Thought I was going nuts. You the same?"

" 'Fraid so," admitted Chris. "I'm worried about him."

"Let's slip out and go over to the blockhouse," the American suggested.

"Give me five minutes," Chris agreed, "and I'll be ready."

In less than that time the two young men were creeping down the stairs and through the entrance lounge. A porter was vigorously polishing the swinging door while another one plied a huge vacuum cleaner over the carpet.

"Going out early," the porter observed, standing aside from the door to let them through.

"We'll be back for breakfast," Chris answered as calmly as he could. He was longing to break into a run to get to the blockhouse as quickly as possible. Instead they both walked across the road as sedately as they could, although it required a great effort to do this.

The zoo wasn't open yet of course, and there seemed no one about to let them through. Without wasting any time the two athletic young men made short work of the limestone wall and were soon trotting through the trees and past the animal cages. Already some of the animals were waiting to be fed, and a lion's roar could be heard clearly in the still air of the early morning. When they reached the gate in the wire fence, Chris whipped out his key and they hurried through and along the familiar path.

Light from the blockhouse soon showed through the trees, and less than two minutes later, slightly breathless, they came to the building. Inside there were half a dozen men, among whom they recognized Mr. Bickel. They seemed to be talking in subdued tones, which immediately alarmed Chris.

"Everything all right?" he managed to say, and Mr. Bickel turned and saw him.

"Yes, nothing to report," the engineer answered more loudly. "We've had no signal from down below."

Serge had been under ground for twenty-one hours. Surely his stay would soon be coming to an end. Chris went forward to the head of the borehole, but the infra-red apparatus stopped him from looking down.

"Sir George isn't around yet," Morrey told Mr. Bickel. "Still asleep, I expect."

"You're wrong," the engineer laughed. "Sir George was here a couple of hours ago. He hasn't been gone more than forty-five minutes."

So Uncle George, too, was uneasy about Serge. Chris's own disquiet increased. Why hadn't Serge been given a definite time at which to emerge? This silence was nerve-wracking. Wouldn't it have been better to tell him to stay in the cavern for no more than an hour his first visit? He could have remained longer the next time. In spite of the cool morning air Chris felt moisture on his forehead.

"Might as well go back to the hotel," he sighed. "You will phone us the second the signal sounds?"

"Sure," laughed Jim Bickel, "even if it means interrupting your bacon and eggs."

Chris and Morrey hurried back. They dared not waste time in case their call came as they were on the way back to the hotel. While they were still in the grounds of the zoo they saw a strange figure running toward them. As it got nearer they saw it was someone in pajamas and dressing gown.

"Tony!" gasped Chris and Morrey together.

It was indeed Tony, and they could see he was extremely angry. At once Chris guessed what had happened. Tony, too, had been awake early and had discovered the absence of his two friends. Immediately he'd jumped to the conclusion that the call had come from the blockhouse, and that they hadn't told him.

"Nothing happened," Chris called as he approached.

"We couldn't sleep, either," Morrey added.

Tony, disheveled, halted by his colleagues.

"You didn't get a call?" he demanded.

"Of course not, fathead," Chris answered. "We'd have called you. Morrey and I both had a bad night, so we came over here just to see how things were. Not a sound from Serge."

"Still, I think you might have seen if I was awake," grumbled Tony. "You might have guessed that I'd be worried about Serge, too."

"Hadn't we all better get back to the hotel instead of gossiping here?" asked Chris.

The porters assured the trio that the telephone had not rung, so they went to their rooms to wash and shave.

"We're all getting a bit jumpy about Serge," Chris observed over breakfast. The trio told Sir George of their early morning visit to the blockhouse, only to hear that he'd been there even earlier.

"Whiskers is the only one keeping calm," smiled the Director.

"I—er—slipped across after you'd all turned in last night," the ex-officer confessed.

Some time later they were all gathered near the entrance to the blockhouse. The infra-red projector was still sending its beam down the mohole to guide the capsule back, but there was no signal. Minutes slowly became an hour and then two. Everyone was getting noticeably more tense. Even Sir George and Mr. Stevens, who'd just joined them, made no effort to conceal their growing anxiety.

"The twenty-four hours are nearly up. He should have returned by now," Benson muttered to himself.

Not until twenty-six hours after Serge's drop did the Director call everyone together.

"I can only think that there's been a disaster," he announced.

13

Far below, in the dark underworld, Serge's slim capsule fell rapidly toward the floor of the cave. His altimeter still showed twenty-five thousand feet to go. It was time to decelerate ready for landing his ship gently. He felt exhilarated at the prospect of exploring, but he went through his drill calmly.

The thrust of the floor told Serge that his motor had sprung into life, and that his ship was fighting against the headlong fall. Already the needle of his altimeter was beginning to move more slowly. With practised ease Serge manipulated the throttle as he'd done so many times during his training.

Now the floor must be less than half a mile away, giving the Russian plenty of time to kill the remainder of his velocity. He gave the throttle control another slight twist as he watched the instruments carefully. His speed of fall was now a mere eighty miles an hour, well within the limits that had been worked out by Sir George. He began to hum a tune as he concentrated on controlling the touch-down. Then, with appalling suddenness, disaster struck. The capsule smashed into something solid and the impact rendered its occupant unconscious.

How long he'd been unconscious Serge couldn't tell. His first sensation after regaining consciousness told him that he was almost standing on his head. He fought to clear his brain as the significance of this began to sink into his mind.

Undoubtedly the capsule had landed, for it was motionless, the rocket motor being cut off automatically on impact. Yet from what he remembered of the situation before the catastrophe Serge was sure that he'd been several thousand feet above the floor. Could his instruments have been wrong? Had he himself failed miserably in his task? Desperately the Russian forced himself to think. It was hopeless. He couldn't imagine what could have happened. All he knew was that something had gone wrong, desperately wrong. Instead of making a gentle landing he'd crashed the capsule and knocked himself out.

He was alive, that was the main thing. Serge switched his thoughts from the fruitless speculation on what had gone wrong to his present plight. Yes, he was undoubtedly lying at a peculiar angle. The capsule must have come into contact with some irregularity of the cavern floor. Had it been damaged? That was Serge's next concern.

From what he could see from his confined and unnatural position the instruments seemed intact. He let his fingers wander over the casing as far as he could. No holes. No jagged edges. Maybe his ship had withstood the impact. Perhaps all that was wrong was that instead of standing firmly on its base, the capsule was lying at a very acute angle.

That his position was desperate, Serge knew. To return to the surface the capsule must be vertical. It couldn't take off from this strange angle. And if the capsule couldn't take off he would be imprisoned in the eternal darkness of the underworld. A cold sweat broke out over Serge's face. He had proved his courage countless times, but to be entombed alone in this black abyss would test it to the full.

He must try to get out of his capsule, that was certain. Perhaps if he could see what had happened he might be able to think of some way of retrieving the situation. In any case he couldn't just lie there doing nothing. If his time had really come, Serge didn't want to meet it imprisoned in this tiny space. If he could get outside at least he'd see what no other human had witnessed before.

Serge checked his suit and helmet as well as he could. If he succeeded in opening the hatch he would be faced with the searing heat of the underworld. A frightening thought struck him. If his suit had been torn or damaged in any way by the crash he'd feel the heat and be exposed to the deadly bacteria as well. It was a risk he would have to take, for it was impossible to be sure that no part of his protective covering had been damaged during those moments of unconsciousness.

Grimly, Serge fumbled for the control. If the capsule had been crushed, even a little, in the crash, it would be unlikely that the hatch would be able to slide. In that case the capsule would be his coffin, and his span of life limited by the oxygen supply. However, Serge took encouragement from the fact that the small electric light was still illuminating the space above his head. A violent impact would surely have extinguished this precious light.

With an effort Serge adjusted his position until his right knee felt the hatch control. He hesitated for a second because his fate was about to be decided. Then he pressed the control and waited to see what would happen.

The hatch had opened! Serge discovered this by working his left arm until it was behind him. When he reached out to touch the hatch he felt empty space. He was now in direct contact with the underground world.

Forcing himself to think calmly and logically, the Russian reviewed his position. Here he was, out of communication with the surface, with his craft lying at a disastrous angle. Common sense told him that he wouldn't be able to blast off from this position. Unless he could alter the lie of his ship, he was a prisoner without hope of escape. If he could get outside he would see whether it was possible to do anything. If not he would have to compose himself to await his end as calmly as possible.

With a heave and a wriggle Serge began the process of extricating himself from his narrow cabin. He'd mastered the method easily enough when the capsule had been standing upright. It was a different proposition now that the ship was lying almost on its nose. He managed at last, by painful contortions, to squeeze his head and shoulders through the opening so he could take his first look at the world outside.

He could see nothing except a blackness that was so intense he could almost touch it. Then he raised his gloved hands to fix the infra-red visor in front of his face. Immediately there was a dramatic change. He was now in a world bathed in a gentle twilight, and what he saw was an incredible sight.

The first thing that Serge became aware of was that the capsule was lying a little way down an enormous cone of rock. Several hundred feet below was the floor of the cavern, which seemed, as Sir George had predicted, fairly smooth. In front the cavern seemed to stretch away into endless distance, though Serge estimated that in the twilight he could see for only two miles or so. On his right, not far from the base of the rock cone, was the cavern wall. It disappeared into the distance above and into the twilight ahead. How far it went in the other direction he couldn't see, for it was masked by the small mountain on which he was perched.

Serge next concentrated on examining the situation of the capsule more carefully. The slope on which it was lying was about sixty degrees. Why it hadn't rolled down to the base he couldn't understand. Then he noticed that the cone wasn't solid, but was made up of innumerable small pieces of rock, and his ship had partly imbedded itself in them. Even as he looked a few pieces went rolling down the side to the floor below. Unless he was very careful the capsule would become loose and crash in an avalanche to the ground. If that happened he had little doubt that it would be seriously damaged.

Carefully, inch by inch, Serge eased himself through the hatch. But even as he stood on the pile of loose rocks several went clattering down the slope. Slowly, carefully he stretched and looked around once more. Now he could see that the apex of the mound was some fifty yards above the point where the capsule lay. But the most extraordinary sight that met his eyes was a beam of light that seemed to come out of the top of the cone. It shone straight up and was lost in the distance overhead.

Serge's heart leaped at the sight of this steady finger of light. It could only mean that there were intelligent creatures in this underworld, creatures who were sufficiently advanced to project this beam into their sky. Yet he could see no lens, no apparatus on top of the mountain of rock. How then was the beam of light created and projected? Then the real explanation suddenly dawned on him. This light wasn't the work of underground creatures at all. It was the infra-red beam being projected down the mohole by his friends on the surface.

Even though his situation was precarious—perhaps even hopeless—Serge felt a great joy in his heart. Here, in this steady beam, was friendship. Its glow told him that his colleagues would be waiting and watching for him in the world above. He felt he would like to climb up to the summit and stand in the beam as it shone.

Another thought entered the Russian's mind. If the infrared beam was shining down the mohole, the mountain of rocks must be right underneath. Was it more than coincidence that that huge mound was piled beneath the bore? To confirm his theory Serge bent down and picked up one of the pieces of rock from near his feet. There was no longer any doubt about it. The rock in his hand was smooth and curved on one face, showing unmistakable signs of the drilling bit.

Of course! This huge cone was the mound of debris and loose rock that had fallen down the original bore when it was being enlarged to take the capsule. It was ironic that opening up the shaft to allow him to descend might also be the means of preventing his return. This vast pile of borings, not shown on his instruments, had caused the disaster. The capsule had struck this unexpected obstacle before its deceleration was finished.

Again Serge looked at the beam. Though not brilliant, it stood out in the gloom around him. If only he could use it to signal back to his friends on the surface! Although they couldn't help him in his plight, it would be a great comfort just to establish contact. But, of course there was no way of doing it. His friends would never know the misfortune that had befallen him.

What was he to do? Long training and frequent exposure to great danger had inured Serge against giving way to panic or fear. Many, many times he'd been in what he had believed to be a hopeless situation. Always he'd survived by his own efforts or the help of his three friends. Now Chris, Morrey and Tony were powerless to come to his assistance. It seemed useless to do anything.

One of the things all astronauts were trained to do in a fatal situation was to keep active right to the end. Only by occupying themselves until they collapsed could they avoid mental disintegration and a complete loss of human dignity in their last moments. Serge knew that this was what he must do. Though no one would witness his breakdown, he owed it to himself to die calmly. He would explore the underworld until his oxygen gave out. He would die with his courage intact. Then the only thing he would regret would be the inability to pass his knowledge to the outer world.

Carefully checking his suit and equipment, Serge began the delicate descent of the mountain of rubble. Once or twice in the past he had climbed slopes of rock fragments where the utmost care had to be taken. The low illumination of the cavern made this descent even more difficult, and several times in the first few yards he almost lost his foothold. When he was half-way down Serge paused to rest and turned to look behind.

It was a strange but cheering sight to see the infra-red beam coming down steadily from above. How near—and yet how far—his friends above were. Then he gazed steadfastly at his capsule lying forlornly on its side. He could see more clearly than ever how impossible it was ever to position it for take-off. Even if he had an unlimited oxygen supply it would take him years to do it. Only by removing the mound of rubble piece by piece could he hope to get his ship on an even base.

Biting his lip a little, but determined not to give way, the Russian resumed his careful descent. At last, an hour after he'd started, he stepped on to the solid floor of the cavern. He bent down and touched it curiously. It was as hard and smooth as glass and, except for an occasional ripple, quite flat. There was evidence, Serge thought, of fusing. Once this floor had been molten rock. Now it had cooled and hardened into a vitreous surface. What tremendous forces, he wondered, had caused this vast bubble of methane in which he was trapped?

The young man marched on resolutely. He would cover as much as possible of this strange place before—well, before he had to stop. That wall he could see in the distance looked interesting. He would pay it a visit.

It was very difficult to judge distances in this subdued light. Serge had thought that the rocky wall wouldn't be more than two hundred yards from the point at which he'd scrambled down the rubble mountain. Yet it took him more than an hour to get near it. As he walked he noticed that the floor continued to be smooth, though he came across a few pieces of loose rock. Automatically he picked one up and placed it in a pocket of his suit. A moment later he cast it away, for, of course, it would never be taken to the surface for analysis.

The first sign that the wall was near came from the slope of the floor. It started to curve upward gradually and then rose at an ever increasing angle. Soon Serge was scrambling along with difficulty, but he managed to get far enough to see that this slope merged gradually into the vertical wall. He would have liked to touch the wall but the curve was too acute. Here was more evidence, he thought, that the underworld was nothing more than a gigantic bubble.

Several times during his journey Serge had stopped to look back. Though the infra-red beam couldn't take him back to the surface it was a useful means of showing where his capsule was. He wouldn't let himself lose sight of this friendly beam, Serge thought.

By now he was feeling tired and thirsty, so he took a pull at the tube in his helmet. Following the emotional stress of his crash landing, he'd been on his feet for several hours. Though his suit protected him from the searing heat outside, he felt very warm. He must rest or he would collapse where he stood. It was too far to make his way back to the rock cone and then it would be too strenuous to climb up to the capsule. He lowered himself gently to the ground just a few hundred yards from the wall where the floor was, once more, quite flat. Within seconds he'd fallen into a deep sleep.

How long he had slept, Serge didn't know. It was only gradually that his brain began to emerge from the mists of sleep. He didn't force his mind to work, for somehow it was very peaceful lying there. Besides, he had a vague worry that when he awoke fully there was a dreadful situation he must face. To put this off as long as possible he allowed his mind to remain empty. He even tried to sleep again, but in the end he awoke completely and he remembered the events of the last days.

He couldn't see. Everything was dark. He blinked his eyes in disbelief. On the surface he wouldn't have been surprised, surmising that he'd slept on into the night. But this was a world of perpetual twilight. The infra-red radiation, changed by his visor to visible wavelengths, couldn't have been shut off. The wall and floor of the cavern must still be emitting the same heat radiation. So either his visor wasn't working, or he'd gone blind!

Serge experienced a moment of panic. It was bad enough having to end his days cut off from his friends. It would be even worse if his eyesight had now failed him and he was condemned to die in perpetual darkness. Automatically he rubbed his visor with his gloved right hand. Immediately he could see a little. So he wasn't blind, and his visor was still efficient. Then it must have been covered with dust or something else while he'd been asleep. He rubbed away vigorously and soon he could see as well as ever.

In great relief Serge looked around the cave once more. Then his heart nearly stopped from the shock. There, in the distance, was the cone of rubble on which he'd landed. But the friendly finger of light was no longer there. His only link with his friends on the surface had been broken. He sank down to the floor in utter despair.

14

A chill spread through the blockhouse at Sir George Benson's words. Twenty-six long hours had passed since the young Russian had been dropped down the mohole. For the last few hours Chris, Tony and Morrey had been trying to fight off the conviction that there had been an accident. Serge should have returned to the surface long ago. That he hadn't done so could only mean that he couldn't. Something must have occurred in the depths of the earth to prevent him from coming back.

The thought made Chris feel sick. They were all so helpless to aid him. It was impossible to radio him or even send a line down the shaft. Maybe they could use the infrared beam to signal to him. But then he'd be unable to reply. That is, if he was still alive to do so. Why, oh why, wasn't there something they could do? They couldn't just stand by helplessly and let Serge die. Whenever one of the little band of astronauts had been in peril before, there had always been a companion at hand to help. What must Serge be feeling at having to face his danger alone?

Chris stumbled out of the blockhouse in an agony of frustration. He couldn't keep looking at the borehole, knowing his friend was helpless at the bottom. If only he himself could go down to help! Sick at heart, Chris wandered off alone up the wooded hillside and into the grounds of the zoo. This time he had no eyes for the caged animals or the people gazing at them. So wrapped up was he in his thoughts that he didn't pay much attention to where he was going. As a result he collided with a zoo visitor and landed none too lightly on his back.

There were apologies all around as Chris was helped to his feet and he saw that he'd bumped into a hefty young girl of about sixteen. She was far too fat for her age and there was little wonder that Chris had bounced off her after this unintentional impact.

"You really will have to get some of that fat off you, Gladys," the girl's mother was saying. "You're like a young elephant about the place. Why don't you do some exercises?"

After more expressions of regret from both sides, Chris hurried away. The bump had jerked his mind back to his surroundings. He couldn't help feeling sorry for Gladys. A course under old Whiskers would thin her down a bit. Hadn't he learned from personal experience how the ex-officer could sweat it out of anyone? With a faint smile Chris wondered how much weight he himself had lost under the ministrations of his bewhiskered friend.

Wham! A thought struck Chris like a physical blow. Though the impact was mental, its result was more devastating than his collision with Gladys a few moments before. Even though the poor girl would have a difficult time before she looked attractive, Chris could have hugged her there and then for the idea she'd unconsciously given him.

No doubt the course of strenuous physical exercises under the ruthless Whiskers must have resulted in an appreciable loss of weight. How much weight had he himself lost? Was it enough to allow him to squeeze into a capsule? If it was, could he persuade Sir George to let him go down and find out what had happened to Serge?

The more he thought about it, the more excited he became. There were duplicate capsules and protective suits at the R.O. works a few miles away. He had received exactly the same training as Serge. Though he hadn't had any experience controlling the capsule's rocket motor, Chris had carried out similar operations scores of times in spacecraft. He had no doubt that he could master the technique easily. Gladys and her family stared in amazement to see him suddenly turn and race full speed toward the gate in the wire fence.

"Uncle George! Uncle George!" Chris was gasping long before he reached the blockhouse. The Director came out of the building.

"Whatever's the matter?" he demanded.

"Let me go down after Serge," the astronaut burst out. "I'm sure I could get into a capsule. I must have lost fifteen pounds since Whiskers started pounding us."

"Calm down and tell me what this is all about," Benson snapped.

Chris took a deep breath. He must sell his idea to Sir George at all costs. It was the least he could do for Serge.

"It's obvious something's happened to Serge," he began. "You yourself said there must have been a disaster. Otherwise he'd have been back again long before now. Well, we can't just let him die without doing something—if there's something we can do. I believe there is. I was a shade too big to squeeze into a capsule some time ago, but I'm sure I could get into it now, thanks to Whiskers. If I can, will you agree to drop me down the hole to see what's happened to Serge?"

"And risk your life as well? No, I don't see how I could possibly agree to that," Sir George sighed. "There are too many unknown factors. It's obvious something unforeseen has happened to Serge. The same thing would probably happen to you."

"But you don't know that," Chris protested. "There may be something preventing his return that I could help with."

"Be sensible," Benson replied patiently, for he knew how Chris must be feeling. "Something has happened either to Serge himself or to his capsule. In either case how could you be of help? You couldn't squeeze him into the capsule with you. I doubt whether you can get in yourself."

"I know I can't get two people into that miserable little space. But if his vehicle is damaged I could send him back in mine," Chris persisted.

"And how would you get back?" Benson asked pointedly. "Would you fly up the mohole?"

"You could drop an empty capsule down to me," Chris answered more soberly. "I could fly that one back."

Sir George shook his head.

"I know how you feel, Chris," he said, "but the thing's impossible. Before we could send an empty capsule down the mohole, it would require considerable modification. At the moment they are manually operated. To fit in an automatic control would take several weeks. The oxygen could only last a fraction of that time."

"So we're just going to leave Serge to his fate, are we?" asked Chris bitterly.

"If anyone can suggest something practical, I'll try it," the Director replied heavily.

"For my own satisfaction, will you let me see if I can get into a capsule?" asked Chris. "If I can't that's the end of the matter."

"Very well," Sir George agreed. If Chris was too big it would finish the argument. It was worth letting him try.

"Come on, then," Chris called to his companions and Mr. Stevens before Benson could change his mind. "Let's put it to the test."

"I'll come, too," the scientist said grimly. He wanted to see this crazy notion of Chris's completely squashed.

In a very short time two cars—one driven by Whiskers, the other by Mr. Stevens—were roaring away from the mohole site toward the huge factory housing the spare capsules. It was a short but silent journey, with Chris furiously marshaling arguments to fire at Sir George if he could get into a capsule. As soon as the cars pulled up outside the R.O. factory, the little party hurried, without ceremony, toward Mr. Stevens' department. The men on duty were amazed by this sudden visit.

A few crisp orders and one of the tall slim cylinders was swung into position. While Chris was putting on a protective suit, the technicians were looking over the capsule much as they had done for Serge such a short time before. By a sudden common impulse, Tony and Morrey decided that they too would try to squeeze into the tiny cabin. All three young men, silent and tense, waited for the trial to begin.

"Off you go, Chris," Sir George Benson said at last.

The Director's mind was in more of a turmoil than he liked to confess. Did he really hope that Chris—or the other two for that matter—would still be too heavy to wriggle into that restricted space? Wasn't this so that he wouldn't have to decide for or against Chris's request? Did he want to avoid the responsibility?

Sir George forced himself to look at the situation from his young friend's point of view. Of course it was only natural that Chris would want to risk his life to save his friend. Benson was well aware of the strength of the bonds among all four of the young men. He could appreciate that for the rest of their lives they would never forgive themselves if they allowed one of their number to die unaided. If only he could believe that there was some—a small chance of success—

With a jerk Benson switched his mind to what was going on around him. Chris had already mounted to the small platform against the open hatch. Now he was pausing as if he were aware that his hopes of saving Serge might vanish in the next sixty seconds. Then, with deliberation, he was placing his left foot inside the capsule to commence the well-known routine for climbing inside.

Chris was holding his breath. It was as if by doing so he could make himself slightly smaller. In followed his right foot, his left shoulder, then his head. He tried to remember if he'd got them inside as easily as this when he tried before. With a twist and a wriggle Chris completed the drill. His heart gave a great leap. He was inside the capsule with the protective suit on!

Gingerly, without instructions from outside, Chris worked his arms in front of his body. Then he felt the knob controlling the hatch. Triumphantly he closed the hatch behind him, proving conclusively that he was now able to go and rescue Serge. Of course he must ignore this cramp that was creeping up his arms because of the pressure on them. There wasn't any need to tell Uncle George about it, was there? With difficulty he made the hatch open, and with more relief that he cared to admit even to himself, he climbed outside.

"You did a good job, Whiskers," he grinned as he stepped down to the waiting group. He turned to look at Sir George, but the scientist was avoiding him, seeming to be talking very earnestly with the R.O. Chairman who had just joined them.

Chris waited impatiently. Every minute that passed might mean more danger for Serge. At least more of his precious oxygen supply would be used up. While Tony and Morrey were trying to follow him into the capsule, he waited to catch Benson's attention. A murmur of applause caused him to turn and he saw that Tony, too, had closed the hatch behind him, but the broad-shouldered American was doomed to failure.

Sir George could put off his confrontation with Chris no longer. Even while he'd been talking and explaining the situation to the tall, pale-eyed industrialist, he'd been trying to decide what to say. It was something the Chairman had said that gave him an idea.

"Perhaps you've been a little too ambitious," the man had said. "Maybe the first drop should barely have entered the cavern."

Morrey had removed his protective suit in disgust by the time the critical moment came. Now that the Chairman had gone he rejoined the group surrounding Sir George.

"Well?"

Chris had spoken one word only. No more was necessary. Sir George must now say whether he would still veto the attempt, or whether he would let the astronaut try to rescue his friend. For himself he was convinced of the futility of such an undertaking. But it could do no harm to let Chris drop down the mohole—provided he made no attempt to land. At least it would give Chris peace of mind for the future because he'd made an attempt.

"I am prepared to let you drop down the bore, but on one condition only," Benson said.

"What is that?" Chris asked quickly.

"That you don't approach the cavern floor," the scientist replied.

"But what good will that do?" Chris protested hotly. "How can I help Serge if I don't go right down to see what's happened to him?"

"You will be able to scan the cavern with your radar. If you detect Serge's capsule you might get some idea what's happened to him. On your return we can plan the next step."

"But I'm prepared to risk a landing," Chris insisted.

"And if you do meet trouble doing it, am I to let Tony follow you down as well?" Benson asked sternly.

Chris thought quickly. Now that Tony also could squeeze into one of the little vehicles, he would want to follow into the mohole if Chris, too, failed to return. No, he couldn't allow his young friend to do this. He must abide by the Director's condition.

"Very well. I'll do what you say."

The next instant it was all action. Sir George spoke briefly to Mr. Stevens, who remained behind to supervise transporting the reserve capsule to the blockhouse. Then Benson, Whiskers, Chris, Morrey and Tony tore off back to Dudley and straight to Jim Bickel at the mohole site. There were more crisp orders as the surface crew prepared for this second drop.

While this was going on, Sir George was having a serious talk with Chris.

"Understand," he was saying, "that whatever has happened to Serge, we can't let anything happen to you. If it did"—and here the Director spoke with great emphasis—"it could mean the cancellation of the entire Mohole Project. I've little doubt but what UNEXA would order the closing of the bore forever if we lost both of our first two subterranauts."

Chris nodded silently. He could understand how Uncle George felt. Though the scientist hadn't mentioned it, Chris was fairly sure that a second tragedy would cost the Director his job. At all costs he must be cautious. He would gladly throw away his own life if it would save that of Serge. But to do it needlessly would cause disaster all around.

"Be very careful after you enter the cavern," Sir George went on. "Get a reading of the depth, then pick up the beam and come back. If Serge is still alive he has oxygen for another five days. There will be plenty of time to make more descents which we must plan cautiously."

The young man nodded. As Sir George had said, if Serge was still alive he could survive for several days. He had no food but enough water. And if he'd crashed to his death there would be no object in risking another catastrophe. The arrival of the capsule ended their talk, and Benson hurried forward to watch its unloading.

"Er—Chris, don't you think it would be better for me to make the drop?"

The whisper had come from Tony, of course, and the mechanic was looking earnestly at his older friend.

"You see, I can squeeze into a capsule as well," he went on. "If anything went wrong, mechanics are two-a-penny," he concluded with a self-conscious grin.

Chris put his arm around Tony's shoulders. He knew his junior crew member would gladly take on the risk. But it was Chris's own idea and he must carry it out.

"Not mechanics like you," he assured his friend.

Morrey said nothing. He guessed what was going on between his two colleagues. He would have done the same as Tony, but these wretched shoulders of his were still too big to squeeze into the capsule despite all that Whiskers had put them through.

"We're ready now," Jim Bickel told Chris quietly. Chris nodded and went off to suit up. A grave Sir George Benson and an unusually solemn Whiskers watched him walk toward the slim cylinder suspended over that awful hole. Mr. Stevens made a last-minute check on Chris's equipment and then the young man, without the customary wave, mounted the short steps and stood beside the open hatch. Beneath his helmet he was grim-faced. This was no time for elaborate farewells. Serge might be in mortal danger and a few lost seconds could be critical.

15

What had happened to the infra-red beam? When at last Serge's natural courage began to seep back, he made himself think calmly about his situation. For some reason the crew on the surface had shut off the projector. Or—and his heart chilled once more at the thought—there might have been a rock fall which had blocked the borehole! It was then that the young Russian's self-control almost deserted him.

But what did it matter? Whether the mohole had been sealed up or not, he couldn't get back to the open air. Still —it would have been a comfort to watch that friendly beam for a little longer. Now he must compose himself as best he could for what he knew was inevitable. How long would he live? It depended on his oxygen supply. Five days, or maybe four? He didn't know how long he'd slept, so he couldn't tell exactly how long he'd been in the ghastly underworld.

Of course he could easily settle things at once. He would only have to turn off his oxygen supply and he'd soon fade out for ever. Or he could remove his helmet and allow his lungs to be scorched by the searing heat. Valiantly Serge shrugged off these unworthy thoughts. It was his duty, instilled in him by years of training, to remain alive to the bitter end, and never quite to give up hope.

As these thoughts raced through his mind Serge noticed that his visor was becoming obscured again. Something was clinging to the outside. Curiously he scraped some of it away and looked at the result on his glove. It didn't seem like dust. Besides, there was no wind in this underground world that could have blown dust over him. As his suit, too, was becoming covered he guessed that it was some form of sublimation from this strange atmosphere.

Then, by some strange quirk of the mind, Serge thought of the deadly microbes that had killed Miss Bevers' assistant. He remembered the new type of bacteria that had been drawn up from the cave and the speculation about the strange new forms of life that might have evolved in the underworld. He wondered if higher forms had developed as they had on the surface.

This substance that kept blocking his visor and was now covering his suit—was this a form of underground life? He couldn't tell by just looking at it. A microscope could have revealed its secrets and decided whether it was animate or inanimate. But of course he'd never get back to take a sample with him.

For want of something better to do Serge decided to try to climb up to his capsule. If he wanted to live his full time, he'd have to get new oxygen bottles from the compartment in which they were stowed. He made his way back to the rocky cone on which his ship was so precariously perched. Then he started to climb.

This time Serge didn't worry about dislodging the loose rock. What did it matter if the useless vehicle came skidding down the slope? It could never fly again. Yet it was his only link with the world he'd known. Chris, Morrey and Tony had tried in vain to squeeze into its slim interior. He was thankful that only he had succeeded. Had it been one of the others, then he would have been incarcerated instead of himself. Perhaps he could draw a grain of comfort from that thought.

Serge clattered up the first few yards of loose rocks. Several times he slipped but managed to recover. He was quite exhausted by the time he reached the forlorn but friendly shape of the capsule. He paused by its side and looked upwards. There was no infra-red beam to show that an exit was still there. Somewhere, miles above, his friends would know they could never meet again. Would they miss him?

He turned his attention to his ship, lying drunkenly on the sloping side. Now he could look at it more carefully, for he was in no hurry. It didn't appear to be badly damaged. Only one of the fins was slightly bent, but the casing was badly scarred where it had scraped down the heap of rocks. Serge had little doubt that the capsule would be perfectly able to take off—if only it were standing on a level base.

But it wasn't on a level base. It was nose down on its side. Serge knew it was far too heavy for him to move it on his own. Now if this had been on the Moon—where gravity is only one-sixth of that on Earth—he would have been able to lift the cylinder himself.

He remembered his first meeting with Chris. It was at the time when his country and America were competing in the Moon race, and he had been trapped inside an upturned Russian surface vehicle. Chris, free to move, in his space suit, had gallantly turned Serge's chariot back on to its tracks. It had been this act which had laid the foundation for the common sense cooperation between East and West.

Serge clawed his way to the storage compartment below the cabin and took out a fresh oxygen bottle. For the last few minutes he'd been aware that the one on his back was almost empty, and this was why he'd been so out of breath in clambering up the rocky pile. With the ease born of long practice he removed the empty bottle from his pack and snapped the full one in its place. There were three more bottles left in the store, each with a supply for twenty-four hours. Four more days to live, he thought to himself grimly. His water supply might last that long, but he was now feeling very hungry.

Chris was tense as he waited inside the capsule. Though he'd been able to squeeze inside, it was very uncomfortable. How he wished that Whiskers had been even more ruthless and had sweated another pound or two off him. He could only just close the hatch and hold the controls that would work his rocket motor.

He was loose! The floor dropped from beneath his feet and he knew he was falling down the mohole. His eyes focused on the small bulb that would flash red when he entered the cave. How long would it be? Though he ought to know, Chris couldn't remember. It was useless looking at the chronometer, for its movement meant nothing to him. He wasn't scared, but he was very worried about Serge. The Russian had passed this way before. What had he encountered in the underworld?

The red light startled Chris. His thoughts had been on his missing friend instead of on his instruments. With an effort he pulled himself together. How could he help Serge, he told himself, if he kept letting his mind wander? Now that he was in the cavern he must be completely alert if he was to observe conditions and try to discover what had happened.

Ah! The floor of the cave was twenty miles below him, and he was rushing toward it at an ever-increasing speed. Of course the first thing he must do was to arrest the capsule's fall. He must slow it down so that he had more time to use his radar scanner. With an effort he found and turned the control that would start up the rocket motor. He hoped he would be able to manipulate the throttle sufficiently to make the ship rise or fall.

It was a great relief to feel the pressure of the floor once more. Experimentally, Chris opened the throttle a little wider, and the thrust increased. Several times he increased or decreased the deceleration until he was certain that he could make the capsule obey his commands.

By now he was some eighteen miles above the floor. His instructions from Sir George had been to run no risk and to return to the surface to report. He must not approach the floor but must scan it carefully with his radar. Because of the lack of radio, he must report personally to the Director, who would be waiting anxiously for him to reappear.

Chris concentrated on his radar. The fall of the capsule had been largely arrested, and he was sinking downward at a mere sixty miles an hour. So far he'd discovered no clue as to what had happened to Serge, and he had seen no sign of his existence. Because the radar screen had to be near his face, it was very small compared with those he'd been accustomed to in spaceships. Chris frowned in concentration as he peered through his visor at the moving trace.

He was still too far above the floor to pick out detailed features. Along one side of the screen the trace was obliterated. This could only mean that the pulse was being reflected from some massive corner which must be the boundary of the cavern. As far as he could tell, this barrier, or wall, must be some two or three miles away, but he had no idea of its extent.

Grimly, Chris continued his descent. He certainly didn't want to return to the surface without any information except the dimensions of one corner of the underworld. If only he could see something that might be the other capsule, he would willingly return to consult his chief. As the ship was still twelve miles up, he felt justified in going very much lower before going back to report.

It was when the ship was but six miles above the floor that Chris became increasingly aware of an unusual irregularity in the cavern floor directly below him. For a moment his heart raced as he wondered if this might not be

Serge's ship. The scanner had shown the floor to be reasonably uniform—except for this one deviation. But a moment's reflection convinced him that, small though the trace was, it was caused by something vastly greater in size than a tiny capsule.

Because it was unique, Chris became very curious about this irregularity. Its position interested him, for it was plumb beneath the mohole itself. That might be coincidence—or it might not. It was strange that the floor, which seemed so flat everywhere else, should show a hillock in this particular spot. Another thing entered his mind. Because of the effect of the cavern wall on the radar pulse, the reflection from the hillock might well be masked. Maybe this projection was much larger than it seemed. The scan on the screen was so small that it could easily be missed. If he hadn't been descending slowly and keeping a close look out, Chris might well have failed to notice it.

Was that what had happened to Serge? The thought flashed into Chris's mind, and he knew that here he had a possible explanation for his friend's disappearance. If Serge had been falling rapidly, he might not have noticed the evidence of the hillock. Even if he had, could he tell its height? Chris might be wrong, but he had a strong suspicion that the peculiar condition of the underworld made accurate assessment impossible. If Serge had not noticed the hillock, or if he'd misjudged its altitude, then there was a possibility that his ship had struck it.

Chris decided to explore this irregularity more. If he could find out whether it had anything to do with Serge, he'd be able to take back information of far more value than just a general report. It might save vital time, for if Serge was still alive his oxygen supply would be diminishing.

Down and down Chris took his capsule, all the time keeping a wary eye on his screen. That mound, or whatever it might be, was going to be a problem. It hadn't been possible to build lateral rockets into the capsule. Consequently the ship could only rise or fall vertically. He wouldn't be able to steer it away from the obstacle beneath him.

Four miles to the floor and still sinking. By now Sir George would be getting impatient for his return. He could imagine the Director watching the seconds tick past with growing concern. He would go down to within two miles of the bottom before carrying out his order to go back. With arms aching from the pressure of his body, with eyes strained from peering continually at the radar screen and the altimeter, Chris persisted doggedly with the descent. If man was ever to explore the underworld thoroughly, the first thing to be done would be to enlarge the mohole, he thought grimly to himself.

Ah! was that the explanation of his hill beneath the bore? If the bore was enlarged—as it had been once before—the borings would fall down the existing hole. Was this unexpected mound just a large pile of debris from the shaft? He must discuss the possibility with Sir George and Mr. Bickel on his return.

When he reached the two-mile mark Chris opened up the throttle a little so that the ship was almost stationary on its tail of fire. For fully five minutes he stared intently at the radar screen, for the strange hill was now revealed in some detail. His theory that it was a huge pile of loose rock from the bore was strengthened by his observation of its shape. It seemed to be a broad-based cone of regular contour; only at one place near the apex could he see any irregularity. He opened up the throttle and climbed up the infra-red beam back to the borehole.

With the fresh supply of oxygen flowing into his helmet, Serge was now breathing easily. He took a number of deep breaths to inhale the precious gas. It really didn't matter if, by doing so, he shortened his life by a few moments. There wasn't after all, any point in conserving his supply.

Should he clamber down the hill to explore further? He'd almost decided to do this when he changed his mind. The capsule was the only friendly thing in this alien world. He would enjoy its company as long as he could. Gratefully he sank down on the rocks and rested his back against the leaning cylinder. He closed his eyes. If only he could sleep until it was all over!

Something made Serge jerk into life. It was a sound, the first he'd heard in this silent world. Though it was totally unexpected, the noise had something familiar about it. It was as if he'd heard the noise of Niagara in the heart of the Sahara! The roar of the great waterfall—or the noise of a rocket!

Serge's eyes swept upward, and he couldn't believe what he saw. The infra-red beam was glowing steadily, and sliding down it toward him was a capsule, the twin of the one lying beside him. It was the roar of the motor that had roused him. He found himself sobbing and shouting at the same time.

"I'm here!" Serge heard himself calling, but of course he knew that he was wasting his breath.

The second capsule was dropping steadily, and the rumble of its motor gradually increased. Though Serge's helmet had masked minor sounds carried by the methane atmosphere—such as his own footfalls—the deep roar of the ship overhead was becoming very pronounced. With beating heart the Russian watched the ship get nearer.

Who could be in it? Had the Director found someone slim enough to follow him down the mohole? What was going to happen?

Serge had no doubt that it was his own failure to return to the surface that had brought the second ship seeking him. Before his own drop there had been no plans for another. No one except himself had been trained or briefed for a descent. His three friends were all too broad to squeeze into the small cabin. Who, then, had piloted this visitor from outside? Serge wondered whether it was a robot ship, but a moment's reflection convinced him that such a thing was impossible to arrange in the short time since he'd made the fall.

If, then, there was a fellow human inside that slim cylinder, who could it be? And what was the purpose of this visit? Obviously it was to find out what had happened to him, but in what way could it help? Even though Serge's mind was occupied with a thousand questions, he felt a surge of joy at the sight. His friends on the surface could do little for him, but at least they had tried.

Fascinated, the Russian watched the ship come lower and lower. Then it stopped and hovered. Though it was still some distance above him, Serge felt he could see its every detail. There must be a fellow human inside. He could feel the ship looking for him, and, without thinking, he began to wave his arms frantically. Again he began to shout at the top of his voice, and though reason told him it was useless, he just couldn't do anything about it. Oblivious of the slithering rocks beneath his feet, he continued his hopeless attempts to attract attention. Then the tail of fire suddenly grew longer, the roar louder, and the ship began to climb back up the infra-red beam.

At last it was gone. He could hear the motor no longer. His voice was hoarse, his throat dry from his useless shouts. He let his arms fall hopelessly to his sides. Now he knew just what a desert island castaway must feel on seeing a ship pass him by. Though he tried to fight it back, an even deeper despair came flooding over him.

16

Sir George Benson smashed his right fist into his left palm. Why had he let Chris make this useless gesture? All his instincts told him that he should not have allowed his young friend to persuade him. But he had; and now Chris, too, was overdue. He paced about the blockhouse in mental agony.

Tony and Morrey were equally alarmed. They understood the compulsion that Chris had felt. Each would, without a second thought, have taken the plunge himself and Tony had even tried to take Chris's place. Now they were worried for both their friends. Was Chris himself in mortal danger? To have their number reduced from four to two didn't bear thinking about.

Tony was on the point of suggesting to Sir George that he should go down the shaft to see what had happened to the other two when a marvelous sound was heard. The alarm, indicating that a capsule had entered the borehole, had sounded.

Everyone was relieved and excited after the growing suspense and anxiety. Chris at least must be safe and soon they would hear if there was any news of Serge. Rapidly Mr. Bickel's men removed the infra-red projector from over the mohole and prepared to hook their fish from down below.

Sir George Benson was uttering a silent prayer of thanks. He did not think he could have carried on if he had sent Chris to his death as well as Serge. Now that Chris was on his way back to the surface some, at least, of the Director's anxiety was removed. It was hardly likely that anything could be done to save Serge, but at least he'd be able to console himself that an attempt had been made. Chris would be the first human to return from the underworld. It would depend on his report whether or not the mohole was sealed up.

The projector had been wheeled away. The hook was ready over the hole. Chris was shooting up the shaft in the capsule as if he were in an express lift. In a few seconds the rocket motor would be cut and the craft would bob up beyond the safety catch. The watchers were dancing about in their excitement and anticipation.

There it was!

The nose of the capsule had appeared for a fraction of a second, and then, as the last of its momentum vanished, it sank back on to the safety catch and waited to be hooked out of the bore. Sir George suddenly realized that he and all the rest of the men in the blockhouse were cheering wildly. Like bees Mr. Bickel's team swarmed around the shaft, and in less than half a minute the capsule had been hauled up to platform level. Then it was thoroughly sterilized by a portable ray gun, while everyone waited with baited breath for the hatch to open and for Chris to step out into the world.

"Stand back!" Sir George called out sharply as everyone surged forward. His command was unnecessary, for a wave of heat radiated by the capsule forced the crowd to retreat. All they could do was to glue their eyes on to the place where Chris would appear.

Inside the cylinder Chris was semi-conscious. As his journey home had progressed, the temperature in the tight little cabin had crept steadily up. The heat had made him swell, and he was in excruciating pain .He could feel sweat, caused by heat and discomfort, oozing out of every pore of his body. His senses reeled, and he was thankful that no action was required from him. He hardly knew when the upward thrust of the floor ceased and the capsule was stationary. His journey was over.

Now he must try to reach the control that would open the hatch, and at first he thought it was going to be impossible. Only by the most painful effort could he move, and it was only the thought that he must report in an effort to help Serge that Chris succeeded. Senses reeling, he felt himself falling through the open hatch.

In spite of the heat from the capsule, Morrey and Tony rushed forward as they saw their friend fall. They managed to save him from rolling off the platform and so prevented what might have been a serious injury. Between them they lifted the suited figure and laid him on the floor. Then they set to work removing his helmet. Working quickly they soon managed to release the fastenings and lifted it from his head.

Chris opened his eyes.

"Hello," he said weakly, and struggled to get up. Tony and Morrey helped him to his feet. He was now the center of quite a crowd, so Sir George led the way to a small office. Chris must be de-briefed as quickly as possible, but it couldn't be done in the middle of this excited throng. The Director shut out all but Tony, Morrey, Mr. Stevens and Mr. Bickel. When he had shut the door he turned to Chris, who was rapidly recovering in the cool, natural air.

There was no need to prompt the subterranaut. He poured out all he'd seen while his audience listened intently. When he paused Benson questioned him sharply about the hillock directly below the borehole. Mr. Bickel agreed that this was almost certainly a mound of borings that had fallen down. From his own profound knowledge of radar Sir George knew how easy it would be, in the peculiar condition of the cavern, to be deceived about its size. Only by building up a store of experience in the underworld could one really assess the true meaning of the radar scan.

The small irregularity that Chris had observed near the apex of the cone aroused the scientist's special interest. Though Chris protested that it might have been his imagination, Sir George concentrated on getting every scrap of information from his young friend. In the end, seeing that Chris was exhausted, he ended the cross-examination and told the subterranaut to strip off his suit and get some rest.

Then Sir George talked earnestly with Mr. Bickel. The engineer had already done a rough calculation of the amount of debris that would have fallen down the bore. Knowing the size and nature of the borings he was able to estimate roughly the size of the mound. It would be about six hundred and eighty yards high and would be nearly that far across the base.

So far so good. They now knew precisely how near the capsule could go to the cavern floor. With this knowledge it would not only be possible to avoid a crash, it would also be feasible to land the ship squarely on the flattened peak. The next explorer could place his ship down safely and still be in a position to return.

Was the slight proturberance near the top of the mound anything to do with Serge's capsule? Or was it just an extra large chunk of rock? Mr. Bickel was certain that no piece could fall down inside the bore that would be big enough to reflect its own radar pulse. Of course there was a possibility that a lump of rock had broken away from the cavern ceiling as the boring bit had broken through. Sir George decided that he must investigate further.

A frown of concentrated thought settled on the scientist's face. Another descent must be made, that was certain. If there was a possibility that the odd lump near the top of the cone of rubble was Serge's ship, then a landing on the cone must be made. But Chris seemed in no condition to make a second drop for a little while. Yet with Serge's oxygen supply dwindling steadily, every minute counted. The Director's eye lit on Tony.

"Will you make a drop?" Benson asked him.

Tony's face turned pale—not from fear, but from excitement that his greatest wish was to be granted. He was going to take part in the attempt to rescue his friend! He nodded dumbly.

"Very well, then," the Director said briskly, "just go and check over the capsule, if it's cool enough."

Tony was hurrying out of the door of the small office when he collided violently with a very tall man just coming in. It was the steely-eyed industrialist, the Chairman of R.O. Completely oblivious of the startled Tony, the Chairman addressed himself to Sir George.

"Can I do anything?" he asked simply.

Benson knew that this forceful man had been kept informed of the happenings at the mohole. There was no need to put him in the picture except to explain what Chris had found. After he'd heard the report he wasted no words.

"If this protuberance is the crashed capsule, it will be unable to bring Smyslov back. If he's alive the only way to get him to the surface is in the second capsule. That isn't large enough to carry two people, so we'll enlarge the third capsule to do the job," he declared.

"How do you mean?" asked the puzzled scientist.

"Increase the length by building a second cabin on top of the existing one," the Chairman replied. "I've already ascertained that the motor can manage the additional weight."

"It's an excellent idea," sighed Sir George, "but I'm afraid it would take too long. Serge has oxygen left for only three days."

"Ample time," the industrialist snapped. "The enlarged capsule will be ready in forty-eight hours. Get things ready at your end. I'll look after mine."

Without another word he hurried away, leaving a breathless Sir George behind.

"He's certainly a forceful character," the Director observed ruefully to Jim Bickel.

If there was to be any chance of success for this amazing rescue attempt, then a great deal of planning had to be done. Tony must be briefed about his drop and a program must be devised for searching for Serge. Then Chris would have to be prepared for when the enlarged capsule was ready. A technique would have to be devised for getting Serge into the upper cabin. Of course, if he was alive and uninjured, then there would be no problem. But if he was injured—or worse—then it would be a difficult job. Sir George, already tired from the strain of the last few hours, could foresee that the next two days were going to be the most exhausting in his life.

Serge polished away at his visor. The wretched growth had covered it again. It was getting pretty thick all over his suit, and he didn't like it. As he rubbed away to clear his view he wondered why he was doing it. What good would it do him? He was condemned to die in this vast underground cave, whether he could see or not. But somehow this growth, animal or vegetable, was repulsive. Serge scrubbed at his visor frantically and then at the loathsome stuff on his suit. If he had to die, at least he'd try to die without this mess.

He could now see his surroundings a little better. He was still trying to brush the growth from his arms and gloves. Then, suddenly, he froze with horror. At the foot of the rock pile, many hundreds of feet below, he saw what looked like a great egg. Where it had come from, he couldn't guess. It certainly hadn't been there when he returned from exploring the cavern floor. But it wasn't the shape, size or unexpected appearance that horrified him. The egg was moving—and it was moving slowly up the slope toward him!

There was something utterly menacing in the slow, deliberate climb of the large oval body. Serge knew at once that the creature of the underworld was, somehow, aware of his presence. It was coming after him. When he recovered from his first shock he watched its leisurely movement with fascination.

It was obviously some type of animal, for he had never known any kind of plant that was mobile like this. Its smooth surface was featureless, and this made it more horrifying. If the creature had had eyes it would at least have had a recognizable feature. Nor could Serge tell how it moved. As far as he could see it didn't undulate like a snake, nor had it innumerable tiny legs like a centipede. It just seemed to travel very slowly up the side of the cone.

Another remarkable thing was that, though he had watched the Egg progress several yards, not once had it dislodged any of the loose rocks of which the cone was built. When he made even a small movement, the Russian sent one or more rocks clattering down the side. This could only mean that the creature could have very little weight. Otherwise it would be disturbing the rocks with its movement. Somehow this gave Serge a glimmer of comfort. Maybe this peculiar animal was just like a big balloon. Prick it, and it would burst.

Though the Egg was still too far below, Serge bent down and picked up a handy rock. He weighed it carefully in his hand. Then with all his strength he hurled it toward the oval menace. It fell very short of the target, and its only effect was to unleash a small avalanche in the direction of the enemy. None of the rocks actually touched the Egg, which continued its relentless climb toward him.

Serge decided he would wait until the Egg got nearer. It was no use wasting his strength and his oxygen until he was sure he could do some damage. Meanwhile this wretched stuff on his suit was becoming more than a nuisance. When he scraped off a patch, in a few minutes it was back again. His visor required constant attention. Now that this Egg, this denizen of the nether regions, was stalking him, he must keep his visor clear at all costs.

If a bomb had dropped on the great R.O. factory its impact could have been no greater than that of its dynamic Chairman. His Bentley had broken all speed limits in a mad dash from Dudley to Darlaston, and even while he was scattering other traffic in his way, the great industrialist was hurling orders over his radio telephone. Mr. Stevens, in the back seat of the huge car, shut his eyes and abandoned himself to fate.

With a horrible screech of brakes the Bentley skidded to a halt. Even before it had stopped moving the Chairman had flung open his door and was bouncing out of the car. The archducal commissionaire was almost bowled over as he stepped forward ceremoniously to greet this human tornado. A pale-face gaggle of technicians and departmental managers were waiting in the Chairman's office for his torrent of orders to swamp them. They were not disappointed.

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Tony, as well as Chris, now had cause to thank Whiskers for his program of strenuous exercises. As he struggled into his protective suit he felt a glow of elation. At last he could try to help Serge. Maybe he'd be able to locate his friend and find out if he was injured. Whatever the outcome of his own mohole drop, Tony felt it was better than enforced idleness. At least he and Chris were going to do all they could to rescue Serge.

Sir George had given Tony his instructions. A program based on Chris's observations had been worked out for a touch-down on the peak of the underground cone. It would be a delicate operation, but Tony was confident he could do it. Chris, now recovered from his own ordeal, gave the mechanic all the advice and help that he could. All was ready for the drop.

Shut up inside the tiny cabin, Tony awaited his fall with more tension than he could remember since his early days of space travel. This was no joyride about the solar system in company with his friends. This was a venture into an unknown environment where one of those friends was already trapped or dead. Which of those two alternatives it was, Tony was determined to find out.

The free fall down the shaft was exactly as Chris had described. Tony passed the time by practicing arm movements in his terribly restricted space. He found he could manage the controls better than he'd expected, though it wasn't going to be an easy task to handle them with the delicacy required for a gentle landing. Though he was expecting it, he felt a quiver of apprehension when he saw the signal that he'd fallen out of the bottom of the mohole and into the cavern. Now it was time to concentrate on the radar, and Tony glued his eyes to the scan. He couldn't pick out the rock cone yet. According to Chris that would come later. Experimentally he opened the throttle of the motor and almost stopped his fall. It was very comforting to know that he had the power to return.

When he caught the first indication of the cone, Tony felt that he was on the trail. He followed Sir George's instructions carefully, all the time watching the altimeter. As he got nearer his objective, he too could see on his screen evidence of a slight irregularity near the peak. His hands held the controls tightly as he concentrated all his thoughts on the task ahead.

Something unusual had happened at the great R.O. works, something that only a very few people could ever remember seeing. As he finished snapping out his orders, the Chairman strode over to a clothes locker. Then, to the utter astonishment of his principal employees, he took out a set of white overalls and put them on.

"Come on," he called as he fastened the last button, "we've a job to do."

As they tore along to the special department, Mr. Stevens recalled that this strange man was himself a skilled mechanic. As a young man he'd started work on the shop floor, even though his father owned the business. He'd quickly earned for himself a reputation and the admiration of his fellow workers, for though he had a university degree, he loved nothing better than to get his hands covered with oil and grease. Even after he'd taken control of an expanding industrial empire, the Chairman had periodically indulged in bouts of activity in the workshops. It was only in more recent years, when his time had become so fully occupied, that he'd had to give up these incursions into the very heart of his empire—the workshop floor.

As for the Chairman himself he welcomed this excuse to work with his hands. He wanted to prove to his top executives, and to himself, that he hadn't lost his manual skill. He'd always found that orders given by a man who could do the job himself command more respect than instructions issued by a theoretician. So, with relief, he was going to cut out board meetings, international conferences, Government committees for the next few days. He was going to lead his team in this race to rescue the young man trapped in the depths of the Earth.

Hour after hour, with no let-up, the R.O. team worked on. Who could relax when the Chairman himself set the pace? Soon the chosen capsule had been stripped down, its nose cone removed, and the stainless steel extension bent into shape. Then came the delicate welding process, and for a time the Chairman handled the welding torch. When he could see some of his companions wilting from exhaustion, he ordered them away and fresh technicians took their place. Only Mr. Stevens hung on, but in the end he too was sent packing. Twenty-four hours had gone by. The capsule extension was taking shape, but there was still much to do. The race against time was neither won nor lost and the Chairman toiled grimly on.

The constant strain, the perpetual watchfulness, was having its effect on Serge. He felt an intense desire to sleep—to close his eyes and to sink down alongside his capsule no matter what happened. He'd even got used to the slow climb of the Egg. What could it do to him? And if it could harm him, did it really matter? Why not abandon everything and sink into a dreamless torpor that would continue to the end?

The fleeting vision of another capsule—had it been an hallucination or had he really seen it? He remembered accounts of vivid images that sometimes appeared to people who were about to die. Had a capsule come looking for him, or had it been a figment of his imagination? Even if it had been real, the capsule had departed without a sign. It was too much to hope or expect that his companions on the surface could mount a rescue operation.

The thought of his friends revived a glimmer of resistance in him. He forced himself to stand up and to look around. By now the menacing oval shape was less than a hundred yards away, and Serge thought he could hit it with a small rock. Well—it would be something to do. It might be interesting to see what would happen when the Egg was hit. Bending down, he picked up a loose piece weighing about a pound. As he balanced it in his hand he planted his feet more firmly in the scree. Then he drew back his arm and flung the missile at his enemy. It fell about ten feet away, but the resultant small avalanche swept up to the Egg and halted its progress. A few seconds later, however, the steady climb was resumed.

Strangely enough Serge felt quite calm. His only feeling seemed to be interest as to whether or not he could hit the target and what would happen when he did. He scrubbed his visor clear once more and took up a second stone. This time his aim was better. The missile hit the Egg fair and square, and then a surprising thing happened. The Thing exploded, and, like a flour bomb, scattered white dust all around.

Serge was gratified at the result. These underground creatures were very vulnerable, it seemed. They were only like balloons filled with powder. But when the dust had settled and he could see the cavern floor once more, Serge had a surprise. At least half a dozen more Eggs were advancing purposefully toward the base of the cone. In spite of himself he felt a quiver of fear at their silent approach.

Tony handled the controls with loving care. Normally he would have been exhilarated at being in control of this small rocket ship. But knowing that the fate of his friend might well hang on his skill, he followed his instructions with caution. As he approached the tip of the cone he slowed down the capsule's rate of fall to a few feet per second.

There could be no doubt about it. This unusual hillock could well cause disaster to the unwary. Not that Serge was careless, but the peculiar pattern of radar reflection in the cave made identification very difficult. It was only because he was looking out for it that Tony saw the evidence of a small irregularity near the top. If this was Serge's capsule he would be landing within a very few yards within two minutes. When his ship had settled firmly he would step outside to seek a clue about what had happened to his friend. His feelings alternated between hope and dread.

The noise of Tony's ship hummed its way through Serge's helmet, and the Russian thought it was the sweetest sound he'd ever heard. He turned his gaze upward, all thought of the Eggs gone from his head. There, descending gently, was the capsule, the twin to the one lying uselessly beside him. Relief flooded over Serge. The normally unemotional young man found himself sobbing with joy. He hadn't been abandoned. He would soon be seeing one of his friends.

He watched the slow descent of the slim cylinder with beating heart, and then he realized that it would never do to show its pilot how disturbed he'd been. He must calm down and appear unconcerned at his predicament. Sir George must have plans for his rescue. Otherwise one of his friends—which one could it be?—would never have ventured so far into the underworld. And this was the second attempt. Whoever was piloting the capsule this time was bringing it down much closer. In a few moments it would land on the apex of the cone.

A horrible thought struck Serge. Suppose this capsule, like his own, landed badly and rolled down the mountain side. It would be just too terrible if two of the subterranauts were stranded. Though he would welcome the companionship of one of his friends, Serge had no wish for him to share his fate. How could he warn the capsule's pilot? He waved his arms frantically to attract attention, even though common sense told him that whoever was inside the cylinder wouldn't be able to see him until the touch-down had been made and the hatch opened.

It was no use. Serge must resign himself to watching his rescuer try this difficult landing. He could only stand by helplessly and see if this second ship remained upright. If it rolled down the mountain as his had done, then the two of them would be trapped.

As he watched the gentle approach of this visitor from the surface, Serge had to admire the way the ship was handled, and he became even more eager to know who was inside. He also permitted himself to speculate about what would happen when the vessel had made a safe landing. It would bring him courage and a fresh supply of oxygen. Maybe whoever was inside would be able to reveal a plan for his rescue. What it would be he couldn't even guess.

Of course the newcomer could offer to take Serge's place and send the Russian back to the surface after his dreadful experience. But Serge—much as he now detested this underground world and its strange inhabitants—was determined to refuse. Though he was desperately anxious to see daylight again and to feel wind and rain on his face, he wasn't going to let any friend of his undergo the ordeal he had been through. If his visitor would leave him a fresh supply of oxygen, he would stubbornly insist on remaining behind until his rescue could be made without leaving anyone in his place. How this could be managed, Serge had no idea, but until it could be done, he was determined to stick it out.

Now the capsule was only several feet above the cone top, and Serge took shelter behind his own ship from the heat of the rocket flame. Small rocks were already beginning to fly from the force of the motor's thrust. It would be dangerous if one struck him and damaged his suit, for he must constantly remember the high temperature all about him.

With his visor a fraction above his useless capsule Serge watched the last feet of the descent with baited breath. If all went well, in a few moments he would be embracing one of his friends. How glad he would be to see him! But, horror of horrors, as the ship touched down it began to heel over drunkenly just as his own must have done.

Inside the capsule Tony had been controlling the descent with the utmost care. One slip now and everything would be wasted. His journey would have been in vain, and he would become another casualty without helping Serge one little bit. It must only be a few feet now, and he waited tensely for the touchdown. It came—but before Tony could congratulate himself, he felt the cylinder lurch drunkenly. Had he, too, failed in his mission?

Not quite. Even more quickly than it takes to think, and much faster than it takes to reach a decision, Tony had opened up the throttle. The dying flame of the rocket motor had roared to life again, and the ship shot up crazily from the mound of rocks. His automatic reaction had saved Tony's capsule from rolling down the mountainside as its predecessor had done.

It was the infra-red beam, streaming down the borehole from the surface, that brought the ship under control. The homing device in the nose locked on to the beam, and the capsule began to veer toward it. Almost before Tony knew what was happening, the capsule was climbing up the beam and safely away from the cone. He breathed a great sigh of relief. At least he was alive to fight another day.

But he couldn't go back to the surface without reporting on Serge. Even though it was impossible to make a landing he must try to have a look around to see if there was any sign of his friend. He would try to stabilize his ship, open the hatch, and look outside.

Carefully, Tony brought his ship down again to within a few feet of the mountain top. Then, by a delicate adjustment of the throttle, he held the ship almost stationary. He would have a few seconds to look outside.

He opened the hatch. It was at his back, of course, and he had to turn around. How he managed it Tony didn't know, but with sweat streaming down his face he eased himself around until he could look through the opening. What, he wondered, would he see?

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As the visiting capsule began to reel over, Serge watched, paralyzed with horror. So he was going to have someone to share his fate. Though he yearned for human company, he didn't want it thrust upon him like this. Better if the ship hadn't come at all, that he'd been abandoned as lost. Now he would have the responsibility of losing another life besides his own.

He jerked his head up in surprise. This ship hadn't toppled down the steep slope. Instead the flame had leapt out again and the cylinder had lurched away from the rocky trap. Like a fly that had torn itself free from the flypaper, it careered about drunkenly. Then it turned and made its way steadily toward and up the beam.

Serge's feelings were tumultuous. Relief—that whoever was inside hadn't been imprisoned with him—predominated, mingled with regret that a fellow human had come so near and now was leaving him. Maybe it would have been better not to have dropped a rescue capsule after all. Twice he'd had the tantalizing sight of a visitor from the outer world. And twice he'd had the bitter disappointment of seeing it climb away from him. It was too much.

Yet the ship hadn't fled away. Miraculously it had stopped. Then it began to slide back down the beam again.

Incredulously Serge watched until the ship paused just above the peak. He dare not expose himself too much, for his suit was not designed to protect him from the searing heat of the rocket flame. Instead he remained crouching behind his own unfortunate vessel.

As he watched a most wonderful thing happened. The hatch in the side of the cylinder opened and he could see a helmeted figure inside. Serge wanted to weep and wave and shout all at the same time. At all costs he must show himself to the one of his friends who had come seeking him. He must let the capsule's pilot know that he was still alive. Risking the heat, he partly raised himself above the cylinder casing and waved frantically. He didn't shout, for the roar of the flame drowned all other sound. Instead he waved and waved and hoped.

Tony marveled at the gentle glow of light that bathed this vast underground world. Though it was all a monotone, his visor enabled him to see well. He musn't waste time peering around this immense cavern. He must concentrate on looking for a sign of Serge.

Beneath him was the mountain of rubble that Chris had first reported seeing on his screen. It was amazing that this great pile had fallen, piece by piece, down the borehole. He looked at it intently, seeking for that odd protuberance that might be Serge's ship. With his own vessel oscillating gently up and down, the mechanic leaned through the hatch.

Jumping crickets! There was Serge's ship lying drunkenly down the slope. And great heavens! There was Serge himself waving vigorously from behind the shelter of the capsule!

Tony nearly fell out of the hatch in his excitement. Gripping one side, he leaned out dangerously and waved back. How he wished he had helmet radio so that he could talk to his friend and tell him to be of good cheer. He was almost tempted to try to touch down for a second time, but common sense told him his duty was to return to the surface and report that Serge was alive. As far as he could see, the Russian was uninjured.

If only his oxygen supply could last until Sir George had worked something out.

Tony decided he must waste no more time. Every second would count in this race against the clock. With a final cheery wave and a thumbs-up sign, he squeezed back into the cabin and began the difficult task of turning around so that he could close the hatch. Now he knew that his friend was alive there was something to strive for. A little bit of pain and discomfort mattered nothing now that there was a life to save. Serge, watching from his shelter, saw the difficult operation accomplished. Then the hatch slid to and the rocket's fiery tail lengthened as the ship began its climb.

In spite of the tense situation in the desperate race he was leading, the Chairman was enjoying himself. To shed the cares of his office, and to devote himself exclusively to this challenging practical task, was a joyous relief. Now he was concentrating his immense driving power on completing the job on time. Word had spread throughout the vast R.O. organization that the Chief was directing and taking part in this titanic undertaking. Many of the men would have given a month's pay to have been working alongside their leader.

The extension to the capsule was finished, the insulated lining was in place, the hatch had been fitted and tested. Because this compartment was designed only to bring back the stranded subterranaut, it was not to be fitted with instruments like the pilot's cabin below. A final polish of the serrated outer casing and in two hours the job would be done; the Chairman, who had worked non-stop for almost two days and nights, would be able to hand the job over to Sir George Benson ninety minutes before the deadline. At least—that was what he thought. But it wasn't to be.

Tony's return to the surface was awaited just as tensely as

Chris's had been. A hundred times Sir George asked himself if he'd been wise in letting the young mechanic make this risky drop. Would the touch-down program be successful, and would he bring back news of Serge?

Chris, now fully recovered from his own visit to the underworld, was chafing at the wait, and so was Morrey. Whiskers was keeping up a running fire of light-hearted comment in an endeavor to ease the tension, but no one was listening to him. All attention was concentrated on the signal that would indicate Tony had re-entered the bore. Not only would there be relief at his return, but everyone was hoping that he'd bring tidings of Serge. If the Russian was still alive, then the new R.O. capsule would get him back. But if Tony had seen no sign of their missing colleague, or if he reported that Serge was dead, then they would have to reconsider the whole situation.

A cheer went up from the waiting men when the siren sounded, and Sir George breathed a secret sigh of relief. After the usual interval the capsule appeared. It was duly secured and sterilized, and then the hatch opened. Again there were cheers all around as Tony wriggled out. Even before he could whip off his helmet to give them the news he held up his hand and again gave the thumbs-up sign. Now the cheering rose to a roar, for Tony's action could only mean that Serge was alive.

"I've seen him," the mechanic burst out as soon as his helmet was off. "We waved to each other. He seems all right."

"Why didn't he come back? Is his capsule damaged?" demanded Sir George.

"I don't know," Tony explained rapidly. "You see, I couldn't land. As soon as I touched down the ship began to topple over. Luckily I was pretty quick opening up the throttle and she picked up the beam again."

He went on to give a full account of everything that had happened in the cavern, and while he was talking the lines of the Director's face deepened. When Tony had finished Benson betrayed his anxiety in the usual way—smashing his right fist into his left palm.

"We've got to make it safe to land," he muttered as the others helped Tony to strip. "Evidently the fins are not sufficient. The ship wants a wider base."

Now that they knew Serge was definitely alive and waiting for them, the situation was even more agonizing. With the present capsules they couldn't simply land to pick him up. So near—and yet so far! If only the capsule had retractable telescopic legs like the old Surveyor mooncraft! But it was hopeless to think about it. There wasn't time.

"Chris! Where's Chris?" Benson asked, looking around.

"He was here a moment ago," Whiskers informed him. "Maybe he's gone outside."

At that moment Chris was streaking along the highway in the Red Peril, which he'd purloined. His destination was the R.O. works. Here, he felt, was the only chance of Serge's salvation. Here was where the capsule modifications must be made. If this great engineering organization, with its vast experience, couldn't devise and execute a means to stabilize the capsule landing, then Serge was doomed indeed.

By now, Chris knew, the extension to the capsule would be well under way. He had sufficient faith in the driving power of the Chairman to know that it would be at an advanced stage. If a further modification was to be made, it was essential that it should be planned and carried out without delay. Time was limited. Even the most optimistic calculation could give Serge but fifty more hours to live.

Ignoring the commissionaire, Chris drove the car right up to the special department, for he judged that here he would find the Chairman. He was right, of course. Inside the building stood the almost completed long double capsule, with the industrialist, in soiled overalls and sagging with fatigue, beside it. Chris was amazed to see that the vessel was nearly ready and he guessed that this was because the Chairman himself had taken an active part. He hurried up to the great man without delay.

At first the Chairman was irritated at the interruption, but when he saw who it was and observed the serious look on Chris's face, he broke away from the knot of men still working on the project.

"Well?" he barked.

"Hale has returned, sir," Chris answered quickly. "He had seen Smyslov, who seems to be uninjured. The trouble is—he couldn't land."

"What do you mean, he couldn't land?" demanded the industrialist.

Chris gave him the gist of Tony's report. When he ventured the opinion that the retractable tail fins were insufficient to support the capsule, the lines on the Chairman's face hardened.

"So this long capsule will be useless!" he growled, and Chris watched him in silence. Then he saw something that explained how this man had come to build up such a great industrial empire. Even as he watched, the Chairman's face hardened with determination, and the lines of fatigue vanished.

"Very well. Then we must modify the capsule to make it stand. How long have we got?" he asked more quietly.

"Fifty hours, sir," Chris told him.

"We'll do it," was all the Chairman would say.

Serge watched the capsule until even the point of light that was the rocket flame had disappeared. One of his friends was inside it and had approached to within a few yards of him. Was it Tony, or Chris, or Morrey? He'd been unable to tell from the brief glimpse he'd had. Whichever one it was, it had been good to have him so near.

Now that he'd actually been seen, Serge had no doubt that frantic efforts would be made to rescue him. He had no idea how it could be done and he was feeling much too tired and weak to think about it. All he could do was to survive as long as he could so that if his friends did devise a method of rescue, their attempt would not be in vain.

The excitement of the visit from the surface over, fatigue was flooding over Serge. In a few moments he would be falling asleep whether he wanted to or not. But there were these horrible Eggs. He looked around wearily and noticed that three of the oval menaces had already started the slow climb toward him. If he could keep awake to repel these invaders, Serge felt he had little to fear. But if fatigue forced him to relax in sleep, he shuddered to think of one of these large smooth shapes enveloping him.

Perhaps, if he could climb back into the capsule and close the hatch, he could sleep. It wouldn't matter, then, what the wretched Eggs did. He would wait for rescue—or at least until his oxygen gave out. The thought of oxygen drew his attention to the failing supply in his bottles. He dragged himself to the little cargo hold that carried the remaining supply, reached inside, and took out two full bottles. These he clipped on to his back where they fitted snugly to his body.

The fresh supply of gas revived Serge sufficiently for him to make the effort to seek the shelter of the ship. Carefully, he tried to ease himself through the small opening, but the only result was to send the cylinder skidding a few yards down the slope. Again he attempted to climb inside, but now the hatch was almost inaccessible. Serge could see that if he persisted, he would send the vessel crashing down the hillside, taking his precious oxygen supply with it. He must face the menace of the Eggs without its protection.

His eyes almost closed with fatigue, he forced himself to look around. The three ovals that were making their way slowly toward him were still out of range. He knew he could destroy them as he'd wiped out the first one. But more were following. He couldn't possibly keep awake until they came for him from the outer world. Even as these doubts passed through his mind, Serge's head dropped forward. He jerked it up again in a determined effort to fight off sleep.

To keep himself awake more than in any expectation of hitting them, he began flinging small rocks at the Eggs. Most of his shots fell short, but in the end he hit one and it disintegrated in the usual white cloud. Curiosity filled the Russian. What was the nature of these strange animals, he wondered—for he had no doubt, now, that they were animals. All they seemed to consist of was an outer envelope containing a cloud of white dust. Yet these "flourbags" knew he was there and were making their way purposefully toward him. Had they an intelligence? Could they really harm him? Serge's brain pondered the questions wearily.

He must have fallen asleep. Suddenly he started up to see one of the huge oval shapes less than ten yards away. In near panic Serge seized the nearest rock and flung it with all his force. The next second he was smothered with the white dust that had come from the exploded Egg. It covered his visor and it was as if he'd suddenly gone blind. Before his vision had been blotted out, Serge had caught a momentary glimpse of another of the Eggs not far behind. He scraped away frantically at the visor, for he must be able to see to keep his other enemy at bay. Whatever this white dust was, it was difficult to remove. In spite of his efforts it stuck to Serge's visor, and only with difficulty did he manage to scrape a small patch clear. It was just sufficient to enable him to see his nearest enemy and to dispose of it with a well-aimed missile. This time the dust didn't quite reach him. Obviously he mustn't let the Eggs get too close.

The efforts and alarms of the last few minutes had thoroughly aroused the Russian, but as his immediate danger was over and he managed to increase his area of vision, weariness came seeping over him once more. For a few moments he wondered whether this effort to keep awake was worthwhile. He couldn't even be sure that his friends would be able to devise a means of rescue. What a relief it would be to abandon the struggle and to let oblivion invade his mind!

These thoughts were treason, Serge told himself angrily. Astronauts were trained never to abandon hope, to fight on to the bitter end. He must struggle on till his oxygen supply gave out. How awful it would be if a rescuer found he'd allowed himself to succumb while there was still some oxygen left!

These brave thoughts sustained Serge for many hours. During that time he destroyed at least six Eggs, but more and more were following. His face was moist with the agony of his struggle to keep awake. At last he knew he was fighting a losing battle. In spite of the training he'd received, in spite of his own indomitable spirit, nature compelled him to abandon the contest. He collapsed at the side of his ship, a sleep from which he could no longer struggle free having overwhelmed him.

And in that terrifying underworld the Eggs crept steadily forward.

19

"So this is where you are!"

Chris couldn't tell whether or not Sir George Benson was angry. It was less than an hour since he'd arrived hot-foot at the R.O. works. Now the Director himself had come to put the problem to the famous engineer, only to find that he'd been forestalled. Already the Chairman had roughly sketched a design for the retractable legs and at that moment was snapping orders to a team of technicians. Secretly Sir George was relieved that the genius and resources of this great man had already taken over the problem.

Because he was a scientist of world renown and also the Director of an agency of the United Nations, Benson did persuade the industrialist to pause long enough to explain his plan. A flying pencil sketched in the details of the required modification, and Sir George marveled at the detail in which it had been conceived in so short a time. Now he could only stand aside and watch while the Chairman and his minions ripped the capsule apart and began to reconstruct it.

All trace of fatigue had vanished from the Chairman's face. Oily smears, and not creases of weariness, were the only things that marred it. A few passes of an electric shaver had removed two days' growth of beard. It was obvious to all that this human dynamo would generate energy right until the job was completed.

Silently, almost with awe, Chris and Sir George watched this technical battle. While Chris quietly told the scientist that he'd dashed over to the works to save every possible minute, the reconstruction of the capsule went on. Hour after hour went by, and though the Director and Chris were only spectators, they were fascinated by the miracle that was taking place before their eyes.

Because the introduction of telescopic legs that folded into the cylinder was a major operation, the capsule had, literally, to be completely disassembled. Part of the casing had to be machined away to accommodate the three legs, for they had to fit snugly into the cylinder while in the borehole. The Chairman had designed a simple spring-loaded mechanism that would do the job. Now the task was to fit everything together again in the short time still left.

The glaring arc lights had concealed the fact that night had fallen and was well advanced. Sir George and Chris decided to go back to the hotel and tell the others what was happening. There was obviously nothing they could do to help. They knew that the Chairman would see things through.

Driving back to Dudley through the quiet early morning, Chris' thoughts were on his Russian friend trapped in the depths of the Earth. Now that he knew from Tony that Serge was alive, conscious, and apparently unhurt, Chris tried to picture what his friend must be feeling. He would know that he'd been spotted and would guess that an attempt was being made to rescue him. But Serge would also know the limits of his own oxygen supply. Chris could imagine him looking anxiously toward the cavern ceiling as the hours relentlessly moved ahead.

Back at the Station Hotel they found Morrey, Tony and Whiskers in the lounge trying to stay awake. They sprang up as Benson and Chris came through the door.

"What's happening?" Tony cried. "Can anything be done?"

"There can—and there is," Sir George answered with the ghost of a smile. "See if you can rustle up some coffee, Whiskers. Then we'll put you in the picture."

The early morning staff had begun to appear by the time the talk was over. Sir George impressed upon his listeners that everything humanly possible was being done. Chris went even further. He said that super-human efforts were being made. The great industrialist was going to prove to everyone that he could do exactly what he said. In his own mind Chris felt that the extended capsule, complete with landing legs, would be ready on time. The hardware would be able to do the job. Would he?

"Bed, everyone," Sir George ordered sternly.

To rest now, in order to be alert when the critical time came, was the best thing that could be done for Serge at that moment. Obediently Whiskers led his charges to their rooms. Maybe the next time they were shooed off to bed Serge would be with them.

Left alone, Sir George Benson stroked his face wearily. Once more he felt responsible for the life of one of his young men. So many times in the past he'd been in a similar position. And always he'd been fortunate enough to snatch his astronauts to safety. Would he keep his record intact? Or was he about to lose one of the quartet of whom he'd grown so fond?

In the silence of the vast, black cavern, Serge slept on. His slumber was too deep even for dreams, and he lay motionless alongside his useless ship. A few yards away—could he have seen it—one of the Eggs was inching its way forward. There was something horrible in the slow, relentless march; something purposeful and menacing. It was as if the Egg and its companions further down the slope were already sure of a victim. That victim was the strange intruder from the outerworld who lay motionless, awaiting his fate.

The sun was shining brightly outside the R.O. works. Inside the arc lights still glared down on the men toiling on the capsule, for no one had remembered to switch them off. By now the ship was being reassembled. The spring-loaded legs were in place but hadn't yet been tested. Oxygen tanks were about to be bolted in position in the lower half of the capsule. There would have to be other tanks below the upper cabin for the use of Serge on the return journey.

A white-coated girl from the canteen wheeled in a trolley of steaming cups of coffee. The weary men gratefully straightened aching backs and sipped the hot liquid.

"Come on, sir—don't let it get cold," Mr. Stevens called to his chief. The Chairman's head and shoulders were inside the hatch and he didn't appear to hear. Mr. Stevens patted him gently on the back and a muffled voice demanded to know what the blazes he wanted.

"Coffee," Mr. Stevens called back, and the Chairman reluctantly withdrew from the hatch and reached for the cup that was held out to him.

"We'll be ready for the upper cabin in twenty minutes," he announced as he drank his coffee. His mind was still on the job in hand, and he'd drunk barely more than half a cup when he handed it back impatiently. With a scarcely concealed sigh the rest of the team followed their chief back to the job.

It was as the top half of the cylinder was being lowered into position that the accident happened. The Chairman was, of course, supervising the operation. He was standing on a platform guiding the new top half of the extended cylinder into position. As it was lowered by overhead crane to join the bottom part one of the securing chains slipped.

The new cylinder lurched forward alarmingly and was about to crash to the ground below when the Chairman moved. Quick as a flash he flung his shoulder against the toppling cylinder. But its weight was too much for him. It crushed him against one of the platform uprights and pinned him there.

However, the cylinder didn't crash to the floor. The left shoulder of the industrialist was wedged between the upright and the cylinder, which remained precariously in position. The Chairman let out an involuntary yell of pain. Then, the blood draining from his face, he gritted his teeth in agony. Any attempt to pull himself free would be disastrous for the cylinder. And if the cylinder fell and was damaged that would be the end of the effort to save Serge.

After the first shock of horror Mr. Stevens grasped the position. If the Chairman held still he could slip another chain around the capsule. But it would mean that the Chairman would have to endure his agony for some minutes. To rescue his chief Mr. Stevens would have to sacrifice the cylinder—and the young man miles below. He climbed the platform to see what he should do.

"I'm—all—right," the Chairman gasped between his teeth. "Save the—capsule."

It was a great temptation to the project manager to disobey. That his beloved and admired leader was grievously injured was obvious, and Mr. Stevens's first reaction was to disregard everything to free his chief. Yet if, in spite of his pain, the Chairman had ordered him to save the capsule, Mr. Stevens knew he must obey. He was well aware that all the driving force of a powerful personality was concentrated on remodeling the mohole capsule on time. If this mishap ruined his work, Mr. Stevens was sure that his Chief's injury would be far worse than the physical hurt. It would undermine his pride, ruin his self-confidence, destroy the genius that had built up this industrial empire.

Gently, so as not to disturb the cylinder, or to cause the

Chairman more pain, Mr. Stevens and an assistant passed another chain around the slim tube of stainless steel. Then they fastened it on to a hook dangling from the crane above. At a signal the crane driver slowly wound in the chain and once more the cylinder was safe.

As he was freed the Chairman staggered and almost fell from the platform. Tenderly Mr. Stevens restrained him and then he was gently eased down the steps to the ground. As if by magic the plant's doctor and nurses had appeared. An ambulance was even now backing in through the sliding doors. The doctor looked at his patient with concern.

"Sit on this stool for a moment, sir," he ordered. "I'll give you an injection till we can get you to hospital."

"You'll do–no such–thing," the Chairman grimaced. "Give me a pain-killer and I'll be all right."

"But you must have an X-ray," the doctor declared firmly. "You may have a broken shoulder and crushed ribs."

"I don't care if I've been decapitated," the industrialist spluttered. "I'm staying on–this job. Do you realize there's a–life at–stake?"

"We can manage, sir," Mr. Stevens interposed.

"No doubt. No doubt," the Chairman replied testily. "But I'm–going to see it through myself."

"This is madness," protested the doctor.

"Call it what you like," the injured man snapped back. "Now are you going to–patch me up, or shall I–send for someone else?"

"I disclaim all responsibility–" the doctor began.

"Disclaim anything you–like. But get on with it, man."

The doctor shrugged his shoulders in resignation. Then, under his guidance, the two nurses began helping to remove the Chief's overalls.

"Get on with the job, Stevens," he ordered. "Don't waste time staring at me."

The project manager gave orders for his men to resume the work. He knew that, in spite of his pain, the eyes of the Chairman would be on them. Even as the doctor strapped up his chest and shoulder, he shouted out instructions. When his ministrations were finished the doctor spoke to his patient quietly.

"You've had your own way about not going to hospital yet, Chairman," he said. "But I'm going to resign my position here and now if you don't remain seated and direct operations from here."

There was a long pause. It was a bitter pill for the industrialist to swallow. Yet common sense told him the doctor was absolutely right. He wouldn't be much use physically, in Mr. Stevens's team. But he could still keep a wary eye on things and watch the job through right to the end if he remained where the nurses had placed him.

"Very well," he growled. "Come and see me again after we've delivered the capsule."

And with that the doctor had to be content.

The huge Egg had crept right up to the sleeping subterranaut. It seemed to pause for a few moments just as a dog stops to sniff his food before beginning his meal. Then it moved again to cover Serge completely. Some part of it must have caught a sharp edge either on the capsule or on the sleeping young man's suit, for it suddenly exploded. The recumbent figure of the Russian was covered with fine white powder just as if a sack of flour had been emptied on him. But this substance wasn't flour. It was capable of eating its way through Serge's suit!

Another Egg was but a few dozen yards away.

Chris woke up with a start. Automatically he reached for his watch from the bedside table. It was four o'clock. He stared at the second hand for a moment to make sure that the watch hadn't stopped. Then he stared at the window and could see sunshine along the edges of the curtains. So it must be four o'clock in the afternoon. He must dress at once!

Shooting out of bed Chris put on a dressing gown and went out into the corridor to look into the bedrooms of his friends. They were all empty. For a moment of panic Chris wondered if something had happened. Then reason told him that he'd been allowed to sleep as long as possible because of the task before him.

He went back to his bedroom and washed and shaved. As he was dressing, a solemn thought came into his mind. The next twenty-four hours would be decisive. If the capsule was finished, he'd be making the drop. If it functioned as planned, he'd be able to land. If he landed he'd look for Serge. If he found him he'd bundle him into the top compartment and blast off for the surface.

But suppose the capsule wasn't ready in time. It would be little use venturing into the underworld. Serge's oxygen supply would be exhausted, and after that he wouldn't last long. Chris felt a little sick as he pondered all the possibilities that the next few hours would bring.

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Time was creeping on. Still the men toiled on the special capsule. The Chairman, officially confined to an inactive role, had nevertheless hovered around the job exhorting, ordering, suggesting, inspiring. He rejected fiercely any suggestion that he should leave. Instead the sheer influence of his presence was doing as much to push the work forward as if he had been able to join in.

At last it was finished. The final touches had been made, the retractable legs tested a hundred times, every square inch doubly checked and inspected. All that remained now was to rush it to the borehole.

"I'll see to it, sir," a tired Mr. Stevens assured his Chief.

"You must come now for that X-ray, Chairman," the doctor said, for he'd been patiently waiting.

"Rubbish," declared the Chairman with a grimace of pain. "I'm going to see this ship delivered myself. You can drive me behind the transporter in the Bentley, Stevens."

And that is what happened. The modified capsule was carefully loaded on to a special vehicle that usually carried aircraft. It began its journey to Dudley at almost midnight. Following slowly behind was the Chairman's big car, with the industrialist himself huddled in the back seat. He'd yielded to the doctor sufficiently to receive another injection, and he'd been secretly glad of it because of the searing pain he was in.

In the hotel lounge Whiskers was waiting.

"Glad you've had a good sleep," he said to Chris as the subterranaut came hurrying down the stairs. "The others are all across there. Orders are you're to get some sandwiches and then I'm to take you over."

"What about the capsule? Will it be ready in time?" demanded Chris.

He was more interested in the progress of his ship than in food, but when Whiskers assured him that there was a good chance that the vessel would be completed late that night, Chris obediently ate his sandwiches.

It was fortunate that he did, for he was soon to need every ounce of strength he could muster.

When he reached the blockhouse Chris found the rest of his friends there and a scene of great activity. Sir George confirmed that the capsule was nearing completion, but that there had been an accident and the Chairman had been injured. He hadn't any details, but he gathered that the Chairman was still on the job.

Mr. Bickel had made the necessary alterations to the platform and the lifting tackle to take the longer capsule. Supplies of liquid oxygen were waiting ready to be pumped into the fuel tanks, and bottles of the compressed gas were prepared for Chris and, hopefully, for Serge. All was ready for the drop—except the capsule.

"Shall we go and see how it's getting on?" asked Tony.

"I wouldn't advise it," Benson replied. "The Chairman can be relied on to deliver the goods on time."

"I hope so," Morrey said seriously. "Serge can only last another eight hours."

But Serge was already as good as dead. Several more Eggs had crept upon him and deposited over him their contents of white powder. He was completely covered, as was much of his ship. The oxygen in the two bottles attached to his suit was already half-exhausted. When the last few cubic centimetres were gone his life would flicker out.

The transporter carried the capsule slowly over the last yards to the blockhouse. Sir George Benson was heartily congratulating the Chairman when, to his subsequent shame, nature won and he slumped to the floor in a faint. After he'd been hustled gently away the final preparations for the drop began. Liquid oxygen was pumped into the tanks, instruments were tested, and Chris was instructed how to operate the legs.

All this time, because they themselves were not able to help, Tony and Morrey were closely watching the clock. By all the best estimates they reckoned that Serge's oxygen could last out until 6 a.m. It was now 2:30 a.m. In just over two hundred minutes their friend would die. Every minute that passed wrung a groan from the waiting pair.

Though he knew that time was running out, Chris was far too busy to count the passing seconds. After he'd examined the new capsule minutely and made himself absolutely familiar with every part, he had a long discussion with Sir George, Mr. Stevens and Mr. Bickel. Time and again, in spite of the creeping hands of the clock, he went over the instructions he was to follow from the moment of release until he was hooked up once more in the blockhouse with his precious cargo.

Would Chris never complete his briefing, Morrey and Tony kept asking themselves in an agony of suspense. Surely he could make the drop now. The capsule was loaded. It hung over the borehole waiting for its pilot. Did Chris and Sir George realize how little time was left?

"Gosh, I can't stand this any longer," Morrey exploded. "I'm going to demand they make the drop at once."

Similar thoughts had been tormenting Tony. He'd even had the mad idea of getting into the capsule himself and insisting on being released. With Morrey he marched forward aggressively to where this everlasting briefing was taking place. Sir George saw them coming and read their objective from the expressions on their faces.

"What the heck is holding everything up?" demanded Morrey.

"How dare you!" Benson rasped, his eyes blazing with anger. "Don't you think I'm aware of the position? Don't you think Chris and I are as anxious to rescue Serge as you are? Do you want me to lose his life, and perhaps Chris's too, through some tiny detail we haven't covered adequately?"

Never had Tony and Morrey seen Sir George so furious. The shock of his anger acted on them like a cold shower. Of course he and Chris were just as concerned for Serge as they were. If he said that this interminable delay was necessary, then Tony and Morrey supposed it was. But the waiting was agony. It wouldn't be so bad if they could do something to help. Being just spectators was unbearable. The young men walked away disconsolately.

"Everything clear?" Sir George Benson was asking Chris.

Chris nodded and looked at his watch. Ninety-two minutes left. It was pushing it close. Only if the rest of the operation went smoothly would he be able to snatch Serge from the depths of the Earth. No thought of his own possible danger entered his mind. All his attention was concentrated on rescuing his friend.

Willing hands helped Chris get his suit on. He checked his visor and oxygen supply. In the distance he could see Tony and Morrey watching unhappily. He beckoned to them and they came hurrying up.

"Don't look so glum, chaps," he grinned. "I'll soon have him back safe and sound."

His two friends didn't trust themselves to speak. Instead they gave a strong, firm grip to Chris's hands. He knew what they meant.

Chris wriggled himself into the lower compartment. This was it. He couldn't look around to take a last look at his friends because, of course, his back was to the open hatch. With a silent prayer he pressed the switch that sealed him off. He was ready for the drop.

It came. He felt the floor collapse beneath his feet. He was on his way. Before long he would be bringing Serge back with him. Or—Chris had secretly resolved—he wouldn't come back at all. But he concentrated on his immediate tasks. They would demand his utmost attention.

Chris took several deep breaths. He'd found that in moments of tension this helped to steady him. With the capsule falling faster every second he knew he wouldn't have long to wait before he fell out of the mohole and entered the cavern. Until that happened there was little he could do except go over in his mind what his program of action would be.

Promptly on time the light signal went on, indicating that the capsule had entered the cave. Chris could now get readings from his radar and the altimeter. Instinctively he worked his hands to the rocket motor controls, though it would still be some minutes before he need decelerate. His own inclination was to postpone slowing down as long as possible, for it might affect the time in which he could reach Serge. However, the sequence of operations worked out by Sir George must be adhered to. Things were far too critical for him to take any risks.

He could see the first faint indication of the cone on the radar trace. He looked at it intently as it grew plainer, for it was there that Serge would be waiting for him. As he watched it the needle of the altimeter fell back steadily and Chris's tension mounted. Never mind. He'd soon be grasping Serge by the hand—or rather by the glove.

Rocket motor on! The satisfactory upward thrust of the floor told Chris that the last stage of the maneuver had been reached. He touched the catch that would release the three legs, and another indicator light showed that all three had extended correctly. The capsule was ready to sit down on the peak of the underground mountain.

Steady now. The tip of the cone was only a few hundred feet below him. Chris slowed the fall still more. He'd have to watch the last fifty feet. He didn't want Serge injured by the flame from his motor. How tragic it would be if, after this colossal rescue effort had almost succeeded, it was ruined at the last moment. Even though it meant landing with a bit of a bump he must shut off the motor in plenty of time. On the other hand, if he jolted the ship too much it might be damaged and unable to take off. Somehow he must strike a balance between the two.

Now! Chris cut the motor, and a second later the capsule struck the top of the cone. For one awful moment he thought it was going to roll over, but it remained reasonably upright. The legs had done their job.

While he was waiting for the cylinder to cool, Chris worked his cramped arms. Then his right knee sought the hatch control. He operated it, and knew at once that the opening had appeared at his back. Then he accomplished the difficult feat of turning around so that he could see outside. Now he could raise his hand to fix the visor, and as soon as he'd done it he peered out anxiously.

There was no sign of Serge. That meant he must be sheltering from the rocket blast. In a few seconds, while Chris's ship was cooling off, he would make his way around into view. Then Chris would jump down and greet him, and soon they would be on their way back to the fresh air, green fields and sunlight of the world above.

Chris frowned. There wasn't any sign of Serge. Perhaps he was still sheltering by his own damaged ship, which was out of Chris's field of view. He—he couldn't be injured, could he?

With this disquieting thought tormenting him, Chris determined to leave the ship. As he was about to spring to the rocks below his attention was caught by something very strange. Dotted at intervals down the sides of the cone, and also across the cavern floor he could see shapes like huge mushrooms. Funny—he had not seen them before. Nor had Tony reported them. What could these amazing growths be? Well—he'd soon find out. He leapt the few feet down to the flattened top of the mountain.

Chris looked at his own ship. It seemed to be standing firmly on its splayed legs. Then he walked around it cautiously. There was Serge's ship lying on its side some yards down the slope. But where was Serge himself? There was no sign of him, and Chris was filled with foreboding. Then he looked a little more closely at the recumbent ship. One of these weird oval shapes was very close, and as he watched it, the thing actually seemed to be moving! Chris's heart missed a beat as he realized that the creature seemed to be making its way slowly to the damaged capsule and a peculiar heap of white substance that lay beside it.

Chris stared at the hummock of white, for it was dawning upon him that it was in exactly the position Serge should have been in to shelter from the rocket blast. A horrible thought struck him. Was this pile of light powder anything to do with his Russian friend? Serge—couldn't be lying under it, could he?

Even as this horrifying thought passed through the young man's mind, the huge moving mushroom had almost reached the heap when, suddenly, it disintegrated. The area was covered with a substance that seemed the same as that mysterious and sinister mound. When it had settled Chris moved forward. Every instinct told him that he would find his friend buried beneath the tumulus of powder.

Whatever it was, this white stuff was getting on to his suit and even partially obscuring his visor. With a shudder, he scraped it away and then edged his way to the wrecked capsule and the tell-tale mound alongside. Without hesitation Chris plunged his left arm into this powdery mass. About a foot below the surface he felt something solid. Feverishly he fumbled around—and felt a helmet!

Dismay and fear flooded over Chris. Had he come so near to rescuing his friend only to find he'd perished under this repulsive mound? Though he abhorred the white, clinging stuff, Chris thrust his two arms into it, felt Serge's shoulders and, with a tremendous effort, heaved him clear. The Russian was looking like a snowman and showed no signs of life. Chris knelt beside him and scraped away at his visor. When he'd got a patch clear, he peered inside anxiously. He could see Serge's face and closed eyes, but couldn't tell whether he was alive or dead.

Further scraping revealed the oxygen gauge, and Chris could see that the needle was almost, but not quite, on zero. So there must still be a trace of the gas in the bottle. Had it been enough to keep Serge alive? Exerting himself, Chris dragged his friend up toward his own ship.

There was little that Chris could do for his companion except to fit on another oxygen bottle. This he did without wasting a second, but whether Serge was still breathing he couldn't tell. The best thing he could do was to get him into the ship and back to the surface as quickly as possible. With a number of the climbing mushrooms pressing up the slope toward them, Chris had no wish to linger in this dreadful underworld.

But now he was faced with a fresh problem. It hadn't been anticipated that Serge would be unconscious—or, maybe, dead—for Tony had reported him waving back vigorously. The hatch to the passenger compartment, in which he was to have traveled, was seven feet from the ground. Had he been conscious, Serge would have had no difficulty in scrambling up. Chris would now have to hoist up the lifeless figure alone—and it wasn't going to be easy.

Chris picked up his friend's limp form. Though Serge was the lightest of the four friends, with his protective suit and helmet he was a fair weight. Chris tried to raise him to the height of the upper hatch, but couldn't manage it. Even had he done so he realized he would have an almost impossible job to pack the helpless subterranaut into the tight little cabin. Of course if he'd had a platform to work from—

He laid Serge down gently. A platform. Well, there was only one thing for it. He must build one from the loose rocks that made up the cone. Fortunately time was no longer quite so important. He'd let fresh oxygen into the Russian's helmet, though he'd still no means of knowing whether Serge was alive or dead. If he could build a platform and a ramp up to it, he could carry Serge up and stow him into the passenger cabin.

Having taken the decision, Chris set to work. It was a laborious task, and he progressed slowly. Suddenly he paused to straighten his back and saw one of those horrid underworld creatures close at hand. Like Serge before him, Chris's reaction was to hurl a rock at it. When it exploded into the familiar cloud Chris knew he'd found the explanation for the white substance that had buried Serge and had coated his own equipment. He must keep his eye on these mobile fungi. It wouldn't do to let himself get smothered.

So he worked on, piling rock upon rock. Every so often, when he took a rest, he'd attack the nearest fungus. But he was beginning to tire. The extra exertion had made him consume much more oxygen, and he clamped on a fresh bottle. Serge still lay motionless, and Chris wondered if he wasn't wasting his strength in this tremendous effort.

At last, after many hours, the job was done. Though the platform and ramp up to it looked very precarious, Chris would be able to carry Serge up to the hatch and stow him inside. Pausing for a few moments to gather together the last of his ebbing strength, Chris hurled another rock at one of his adversaries. Then he picked up Serge and began the herculean task of carrying him to the upper hatch and stashing him inside.

Many times stones rolled from beneath Chris's feet, and he and his burden nearly fell—but at last he reached the hatch and was almost fainting from his exertions. Without pausing—for he knew that if he rested for a single moment, he wouldn't be able to resume—he rammed the body of Serge into the tiny space prepared for it. Then another difficulty cropped up. The passenger in the upper cabin was supposed to close the hatch himself. Serge's body was between Chris and the control knob. Somehow he managed to squeeze his arm around his friend and operate the mechanism. He had to withdraw his arm very quickly to avoid getting it crushed by the closing hatch.

Gratefully, the young man relaxed at the foot of the ramp. Never in his life had he felt so weak and tired. How wonderful it would be if he could just lie down to rest and sleep. Perhaps that was what had happened to Serge. Now he must keep alert to repel invaders.

As soon as possible, he must get back to the surface. Maybe something could be done for Serge if he was still alive. In any case he had no wish to prolong his sojourn in the cavern. He turned his attention to getting away.

It was plain that he must first remove the ramp and platform that he'd constructed so laboriously. Unless he did so, the capsule would be unable to blast off. With a sigh of resignation, the weary Chris forced himself to start his task of demolition. It proved to be much easier than the building, but long before he'd finished Chris found himself gasping for fresh oxygen. He went to the storage hold to fetch a fresh bottle—and received a stunning shock. There wasn't one.

He remembered he'd just fitted the last one to Serge!

Because of his long training Chris was able to control his momentary panic. The physical effort that had been necessary to build the ramp and stow Serge aboard had certainly upset all calculations. His own oxygen supply was now running out, and he had no more to replace it. Even as he resumed his task, Chris's brain was working at lightning speed. The best estimate that he could make was that he could work for another five minutes at clearing away the rocks. At the end of that time he'd have to leave the job even though it would be far from finished. Further delay would jeopardize the whole operation, for he would then hardly have gas enough to survive for the launching. It didn't matter what happened after the ship got away.

At the end of the time he'd allotted himself, Chris finished his outside work. There was a red mist in front of his eyes as he prepared to wriggle into his cabin. He felt consciousness slipping away from him as he completed the painful squeeze. If only he could shut the hatch and fire the motor. How he did it Chris could never remember, but the last thing he knew before blackness swirled over him was that the cabin floor was thrusting him upward. Upward to the sun, the clouds and the sky above.

Yes, it had been a very near thing, Whiskers agreed.

It was a few days after the dramatic return of the two subterranauts. Guided automatically by the infra-red beam, the capsule had found its way back into the borehole. There'd been wild excitement in the blockhouse when this had been signaled. It was fortunate that Mr. Stevens and his men had fallen on the anchored capsule long before it was really cool enough. Excitement had given way to horror when two unconscious passengers were lifted out, but eager hands had removed helmets and suits so that a medical team could take over. The cheers that rang out when first Serge, and then Chris, regained consciousness, were deafening. Sir George Benson had to step outside quickly to conceal his emotion.

The four friends, together with Whiskers and Sir George, had been across to watch the mohole being sealed off. UNEXA had decided that it would be advisable to plug this entrance to the underworld until apparatus could be built for enlarging the bore. The seal would be removed only when a vast new drilling derrick had been erected. Then work would start on preparing for some intrepid explorers to plunge once more into the fearsome depths.

Chris, Morrey, Serge and Tony were determined to be those explorers. The world must somehow be saved from grinding to a halt for lack of fuel—or being shaken to pieces by giant earthquakes.

After it was all over they walked back thoughtfully through the zoo grounds. Suddenly Tony paused in front of an empty cage.

"You know, if we could have brought up one of those Eggs and put it in here, folks would have come for miles to see it," he said brightly.